United States
Department of
Agriculture

Soil
Conservation
Service

In Cooperation with
United States
Department of Agriculture
Forest Service
United States Department
of the Interior
Bureau of Land Management
and
Bureau of Indian Affairs
and the
University of Nevada
Agricultural
Experiment Station

Soil Survey of Lyon County Area, Nevada

How To Use This Soil Survey

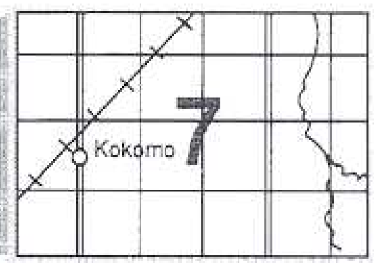
General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

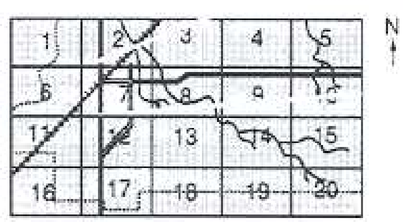
Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.



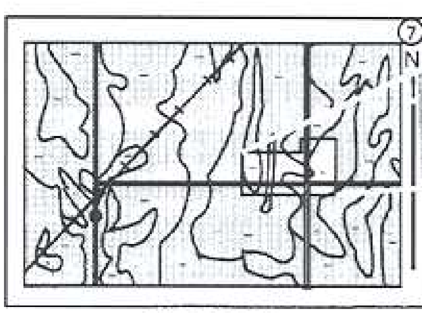
MAP SHEET

To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.

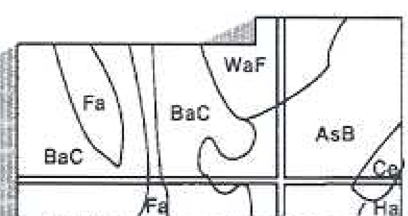


INDEX TO MAP SHEETS

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



MAP SHEET



AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1968-79. Soil names and descriptions were approved in 1981. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1980. This survey was made cooperatively by the Soil Conservation Service, the Bureau of Land Management, the Bureau of Indian Affairs, the Forest Service, and the University of Nevada Agricultural Experiment Station. It is part of the technical assistance furnished to the Smith Valley and Mason Valley Soil Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Soil Series

Issued June 1984

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Summary of Tables

Foreword

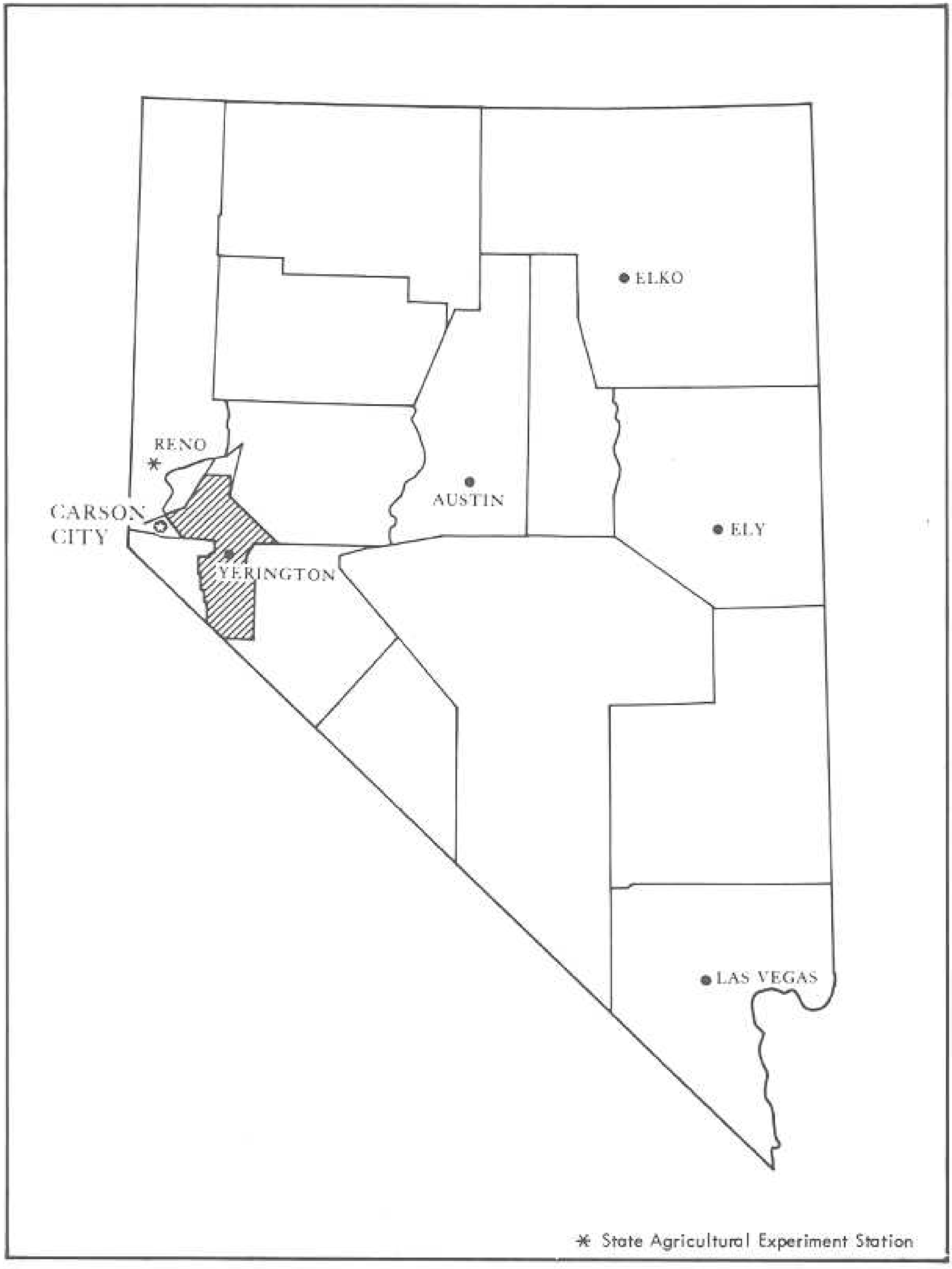
This soil survey contains information that can be used in land-planning programs in Lyon County Area, Nevada. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Gerald C. Thola
State Conservationist
Soil Conservation Service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Soil Survey of
Lyon County Area, Nevada

By Warren M. Archer, Soil Conservation Service

Fieldwork by Warren M. Archer, Joseph H. DuRosseau, and
James A. Mitchell, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with United States Department of Agriculture,
Forest Service, United States Department of the Interior,
Bureau of Land Management and Bureau of Indian Affairs, and the
University of Nevada Agricultural Experiment Station

LYON COUNTY AREA includes all of Lyon County except the extreme northern part. The survey area is in west-central Nevada. It has a total area of approximately 1,925 square miles. The survey area is bordered on the west by Storey and Douglas Counties and Carson City, on the south by Mineral and Mono Counties, on the east by Churchill and Mineral Counties, and on the north by Washoe and Churchill Counties.

Yerington, the county seat, is approximately 35 miles southeast of Carson City, the state capital, and about 80 miles southeast of Reno. The elevation is 4,357 feet. Other population centers in the area include Smith, Wellington, Silver Springs, Silver City, Mason, and Dayton. The total population of Lyon County was 13,677 in 1980, according to preliminary figures of the U.S. Census Bureau.

Important physiographic units in the area include the Pine Grove Hills; Pine Nut, Sweetwater, and Desert Mountains; Singatse and Wassuk Ranges; the Walker River Basin, including Smith and Mason Valleys; and the Carson River Basin. The highest point in the area, about 10,500 feet, is in the Sweetwater Mountains.

Descriptions, names, and delineations of soils in this soil survey do not fully agree with those on soil maps for adjacent counties. Differences are the result of better knowledge of soils, modifications in series concepts, intensity of mapping, or the extent of soils within the survey.

General Nature of the Survey Area

By John C. Schelling, district conservationist, Soil Conservation Service.

This section briefly discussed the history, industries and transportation, water supply, drainage, geology, and climate of the survey area.

History

Lyon County, one of the original territorial counties, was established November 25, 1861. It was named after General Nathaniel Lyon. The economy of the county has been based on mining and agriculture.

Originally the county seat was Dayton, which is in the northwestern part of the county. It was moved to Yerington in 1911 when a fire destroyed the courthouse. Yerington at one time was called "Pizen Switch," a name coined by local cowboys. N. H. A. Mason, for whom the community of Mason and Mason Valley is named, discovered the value of Mason Valley for grazing in 1854 while driving cattle to California. Gold was discovered in the survey area by David Wilson Sneider. Angus McLeod for a time ran a four-horse stage from Pine Grove through Mason Valley to Virginia City.

The town of Wabuska was established in 1880 at the same time as the narrow gauge Carson and Colorado Railroad. This railroad was taken over by the Southern Pacific Company.

The county's first newspaper, The Mason Valley Tidings, was published by Mr. Sayers in 1880. Later it was sold to Charles Patterson, who changed the name to The Yerington Rustler.

Industries and Transportation

Mason Valley has supported a number of manufacturing interests. A flour mill was erected at the early-day Wilson Ranch, near Nordyke. Later a feed and grain mill was constructed. A creamery was built in 1893, and several years later an ice plant was established. During this period stores and casinos flourished.

Lyon County is noted for its extensive agricultural production centered in Smith and Mason Valleys and along the Carson River east of Dayton. Beef cattle are raised along the East Walker River on 33,000 acres of private pasture, mostly in Smith and Mason Valleys, and on 585,000 acres of the Bureau of Land Management land, throughout the county.

The main crop is alfalfa, a large portion of which is marketed out of state. Other crops of major importance include barley, wheat, oats, and specialty crops of potatoes, onions, and garlic.

Mining has had an important part in the industrial growth of the county. One of the state's larger mining operations, the Anaconda Copper open pit and mill, flourished northwest of Yerington until the late 1970's, when the thickness of the overburden and the availability of mostly low-grade ore forced its closure. Several mining districts are located within the county.

Interest in geothermal energy for industry is increasing. The county's first gasohol plant is at Wabuska.

A good road system serves Lyon County. U.S. Interstate 80 crosses the north end of the county and provides access to Fernley and to U.S. Highway 95A, which is the main route between Reno and Las Vegas. U.S. Highway 50 crosses the county through the Dayton-Silver Springs area, providing an alternate east-west route across the state. Various state routes have also been constructed.

The county has approximately 56 miles of the Southern Pacific Railroad spur line, which extends from the main line at Hazen through Wabuska and east to Mineral County. The station at Wabuska handles shipments of mineral and agricultural products.

Four registered airstrips are located in the county, the principle one being the paved 3,920-foot strip owned by the City of Yerington. It is located at the north end of town and is the only airport maintaining any facilities. There is no scheduled flight service into Lyon County. Passenger and airfreight service is available at Reno.

Several public carriers serve the county. The Las Vegas-Tonopah-Reno Stage lines have daily arrivals and departures. At least two truck carriers provide overnight service to Reno, Las Vegas, San Francisco, and Los Angeles. United Parcel Service also serves the county.

Water Supply

The major sources of irrigation water in the survey area are the East Fork and West Fork of the Walker River and the Carson River. These are supplemented by irrigation wells used mostly as a backup source in years of drought. There are no upstream storage facilities on the Carson River. In 1919 land acquisition and the construction of Topaz and Bridgeport Reservoirs on the West Fork and East Fork of the Walker River began. Topaz Reservoir, on the west fork, was finished first. Storage of 45,000 acre-feet of water was started in January 1922, and its capacity increased to 59,440 acre-feet in 1937. Bridgeport Reservoir, on the East Fork, began storing 42,460 acre-feet of water in December 1924. Irrigation water diverted from the Walker and Carson Rivers is dependent on runoff from the Sierra Nevada Mountains and varies widely from year to year.

The Walker River Irrigation District was organized in April 1919 to improve irrigation operations on the river. This district is responsible for water rights on approximately 79,000 acres in the survey area. Diverted river water is distributed to individual users by a complex system of 25 ditches throughout Mason and Smith Valleys.

Drainage

The southern half of the survey area is drained mainly by the Walker River, and the northern half is drained by the Carson River. The headwaters of the Walker River are in the Sierra Nevada of California. The river flows north and east into Nevada, passes through Smith and Mason Valleys, turns east and south in a circular fashion through Schurz in Mineral County, and terminates in Walker Lake. Runoff from the east-facing slopes of the Sierra Nevada flows into the Carson River. The river flows east and north through Carson Valley and then turns east again near Carson City to flow through Dayton and the northern part of Lyon County and on to Lahontan Reservoir. This river terminates in the Carson Sink. Some other smaller drainageways are Bodie and Rough Creeks on the east fork of the Walker River, Desert Creek on the west fork of the Walker River, and El Dorado Canyon on the Carson River.

Geology

Lyon County lies entirely within the borders of the Cretaceous Sierra Nevada Batholith. The soils forming in material derived from the granitic rock of this batholith are typified by those in the Berit, Chill, and Uripnes series. The pre-Cretaceous rocks are Triassic and Jurassic in age and are dominantly metamorphic volcanic rocks consisting mainly of andesite and occurring as roof pendants in the batholith.

Overlying the granitic and metamorphic rocks is an extensive sequence of Cenezoic volcanic and interbedded sedimentary rocks. In general, this sequence includes rhyolitic tuff considered to be Miocene in age overlain by Miocene and Pliocene andesite and dacite and thick sequences of intercalated lacustrine and fluviatile sediments. Theon, Singatse, Hyloc, and Ister soils are representative of soils that formed in material derived from andesite, dacite, and rhyolitic tuff. Vylach, Celeton, Ravenell, and Haar are soils that formed in sedimentary rock.

The latest general period of volcanic activity extruded basaltic flows in which Lapon and Pirouette soils have developed.

Pleistocene lacustrine deposits are in the Carson Plains-Silver Springs area and in Smith Valley. Wedertz, Rusty, and Hough soils formed in these deposits.

Climate

Prepared by the National Climatic Center, Asheville, North Carolina.

In Lyon County summers are hot, expecially at the lower elevations, and winters are cold. Precipitation normally is low at the lower elevations throughout the year. At the higher elevations, precipitation is much higher and snow accumulates to considerable depths.

Table 1 gives data on temperature and precipitation for the survey area, as recorded for the period 1951-1975, at Topaz Lake, southwest of the county; at Yerington, in the county; and at Lahontan Dam, on the northeast border of the county. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 34 degrees F in the southern part of the county and 36 degrees in the northeastern part. The average daily minimum temperature is 19 degrees in the southern part and 25 degrees in the northeastern part. The lowest temperature on record, -17 degrees, occurred at Topaz Lake on January 23, l962. In summer the average temperature varies from 67 degrees in the southern part of the county to 74 degrees in Lahontan Dam. The highest temperature, 106 degrees, was recorded at Lahontan Dam (elevation 4,158 feet) on July 20, 1960.

Growing degree days, shown in table 1, are equivalent to "heat units." Beginning in spring, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 3 inches, or 40 percent, usually falls during April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 2 inches. The heaviest 1-day rainfall during the period of record was 2.35 inches at Topaz Lake on February 2, l963. Thunderstorms occur on about 13 days each year, of which 9 occur in summer.

Average seasonal snowfall is 10 inches. The greatest snow depth at any one time during the period of record was 10 inches at Topaz Lake. On the average of 2 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 30 percent. Humidity is higher at night, and the average at dawn is about 55 percent. The percentage of possible sunshine is 90 percent in summer and 70 percent in winter. The prevailing wind is from the west-northwest. Average windspeed is highest, 8 miles per hour, in April.

Every few years a blizzard strikes the survey area with high winds and much drifting snow. Even at the lower elevations, snow remains on the ground for many weeks after a blizzard and livestock suffer.

How this Survey was Made

Soil scientists made this survey to provide information about the soils in the survey area, where they are, and how they will behave for specified land uses. Before going into the area, the soil scientsits reviewed the available literature on the climate, geology, landforms, drainage patterns, and biological activity in the area.

In the initial stages of the survey a preview of the survey was made. During this time, the soil scientists and specialists examined the soils and studied their relationship to the vegetation, geology, and landforms of the survey area.

The soil scientists dug pits to study the soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by natural weathering processes or plant roots. The soil scientists recorded the characteristics of the profiles they studied and compared the profiles with representative profiles of known soils in nearby counties and in more distant places. They then classified and named the soils in the survey area.

The soil scientists analyzed the relationship between the observed soil properties, the landforms, and the native plants in the area. After studying this relationship, the soil scientists can predict with considerable accuracy the kinds of soil on the landscape.

The soil scientists drew boundaries of the soils on aerial photographs. These photographs show woodland, buildings, roads, and other details that help in drawing accurate boundaries. The soil maps at the back of this publication were prepared from aerial photographs.

While a soil survey is in progress, samples of some of the soils are collected for laboratory analyses and engineering tests. All the soils are field tested to determine their characteristics. Interpretations of the characteristics are made during the survey process, and

the soil is assigned to a taxonomic class. Data are assembled from other sources, such as test results, recorded field experiences, and State and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

The areas shown on a soil map are called map units. The design of each map unit is based on the actual or intended use and management of the area. Where the present or intended land use is an intensive one, such as cropland or urban development, the map units often consist of one kind of dominant soil. Each delineation is defined, and the soil is identified and verified, at closely spaced intervals. This identification and verification is usually done by examining many small holes. If the intended land use is a less intensive one, such as low productivity rangeland, wildlife habitat, or watershed, the map units often consist of two or three different kinds of major soils or miscellaneous areas. The soils in each map unit are identified by traversing the area, making transects, and studying the soil-landscape relationship. Once the map units have been identified, other delineations can be defined based on interpretations of aerial photographs and on other observations.

Each map unit is made up of the soil or soils for which it is named plus a small proportion of soils that belong to other taxonomic classes and miscellaneous areas. Some areas of differing soils are called noncontrasting included soils. These soils have properties and behavorial patterns similar to those of the dominant soil or soils in the map unit, and their presence does not affect use and management. Also within the delineated areas are contrasting included soils or miscellaneous areas that have properties and behavior divergent enough to require different use or management. These contrasting included areas are small and are listed in the map unit description.

The presence of noncontrasting or contrasting included areas in a map unit in no way diminishes the usefulness or accuracy of the soil survey. The objective of soil mapping is not to delineate pure taxonomic classes of soils, but to separate the landscape into units that have similar use and management requirements. The approximation of such units on the map provides sufficient information to allow the development of resource plans, but onsite investigation is needed to plan for specific uses.

Only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, rangeland and woodland managers, engineers, planners, developers and builders, home buyers, and others.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The 15 map units in this survey area have been grouped into four general kinds of landscape for broad interpretive purposes. Each of the broad groups and the map units in each group are described in the following pages.

Areas Dominated by Soils on Valley Fill Plains

This group consists of four map units. The soils in this group dominantly are on alluvial flats, lake plains, lake terraces, stream terraces, and flood plains. Elevation is 4,200 to 5,200 feet. The average annual precipitation is 4 to 8 inches, the average annual air temperature is 48 to 51 degrees F, and the frost-free season is about 100 to 120 days.

These soils are nearly level to moderately steep and are shallow and very deep. They are fine textured to coarse textured throughout the profile.

Many of the soils in this group have a seasonal high water table and are subject to flooding. Some of the soils have altered drainage, and others are well drained and somewhat excessively drained. The content of salt and alkali in the soils is highly variable.

1. Lahontan-Orizaba-Wabuska

Nearly level, very deep, somewhat poorly drained soils; on lake plains and alluvial flats

This map unit makes up about 4 percent of the survey area. It is in the lower parts of the Smith, Mason, and Churchill Valleys. The vegetation is mainly sparse stands of black greasewood, inland saltgrass, alkali sacaton, and other salt- and alkali-tolerant plants.

The Lahontan soils are on old lake plains. These soils dominantly are stratified and medium textured to fine textured throughout the profile. They are affected by salt and alkali. These soils are subject to rare periods of flooding. Some areas have altered drainage because of the lowering of basin lakes.

The Orizaba soils are on alluvial flats and old lake plains. These soils dominantly are stratified and moderately fine textured to coarse textured throughout the profile. They are strongly affected by salt and alkali. These soils are subject to rare periods of flooding.

The Wabuska soils are on alluvial flats. These soils dominantly are stratified and medium textured to coarse textured throughout the profile. Most of these soils are slightly to strongly affected by salt and alkali. These soils are subject to rare periods of flooding.

Of minor extent in this unit are moderately fine textured Dalzell soils, fine textured Parran and Ultra soils, and Playas. The Dalzell soils are on lake terraces and support Indian ricegrass and shadscale. The Parran and Ultra soils are on lake plains.

This unit is used for livestock grazing and rangeland wildlife habitat. The main limitations are the content of salt and alkali in the soils and the low average annual precipitation.

2. Dithod-East Fork-Fallon

Nearly level, very deep, somewhat poorly drained soils; on alluvial flats, flood plains, and low stream terraces

This map unit makes up about 6 percent of the survey area. It is in the low areas of Smith and Mason Valleys and along the Carson River. Vegetation is mainly basin wildrye, western wheatgrass, and basin big sagebrush in areas not affected by salt and alkali and inland saltgrass, alkali sacaton, and black greasewood in areas affected by salt and alkali.

The Dithod soils are on alluvial flats, flood plains, and low stream terraces. These soils dominantly are stratified and moderately fine textured to coarse textured throughout the profile. They have a dark colored surface layer. In some places they are salt- and alkali-affected.

Most areas are artificially drained. Some areas are subject to rare periods of flooding.

The East Fork soils are on alluvial flats, flood plains, and low stream-cut terraces. These soils dominantly are moderately fine textured and have a dark colored surface layer. In some places they are salt- and alkali-affected. Most areas of these soils are artificially drained. Some areas are subject to rare or occasional periods of flooding.

The Fallon soils are on low stream terraces. These soils dominantly are stratified and medium textured to coarse textured throughout the profile. They have a light colored surface layer. These soils have been artificially drained in most areas. Most areas are subject to rare or frequent periods of flooding. Small areas are salt- and alkali-affected.

Of minor extent in this unit are Appian, Fernley, Obanion, Rose Creek, and Sagouspe soils. The Appian soils are well drained and on intermediate lake terraces. The Fernley and Sagouspe soils are on low stream terraces and flood plains and are coarse textured throughout the profile. The Obanion soils are very poorly drained and on alluvial flats. The Rose Creek soils are on flood plains and are poorly drained. All the soils except the Appian soils are subject to rare periods of flooding. The Appian soils support black greasewood and big sagebrush.

This unit is used mainly as irrigated cropland and pastureland and for homesite development and wetland wildlife habitat.

The main limitations for wetland wildlife habitat are some areas that have a high content of salt and alkali and a lack of available water in some areas.

The main limitation for irrigated crops and pasture is the high water table of the Dithod soil. Some areas of the East Fork and Fallon soils are limited by the hazard of flooding. The Fallon soils are also limited by a low available water capacity and the hazard of soil blowing. In some areas the content of salt and alkali is also a limitation.

This unit is poorly suited to homesite development. The main limitations are the high water table and the hazard of flooding.

3. Saralegui-Wedertz-Wellington

Nearly level to strongly sloping, shallow and very deep, well drained soils; on alluvial fans and lake terraces

This map unit makes up about 4 percent of the survey area. It is in Smith Valley. The vegetation is mainly Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail.

The very deep Saralegui soils are on nearly level to moderately sloping alluvial fans and lake terraces. These soils have a dominantly coarse textured surface layer and a moderately coarse textured subsoil and substratum.

The very deep Wedertz soils are on nearly level to strongly sloping old lake terrace remnants. These soils have a dominantly coarse textured surface layer and a moderately fine textured subsoil over a discontinuous cemented hardpan.

The shallow Wellington soils are on nearly level to strongly sloping old high lake terrace remnants. These soils have a dominantly coarse textured surface layer and a moderately fine textured subsoil over an indurated hardpan.

Of minor extent in this unit are Saralegui Variant soils. They dominantly have a moderately coarse textured subsoil and a stratified and coarse textured to moderately fine textured substratum.

This unit is used for livestock grazing, rangeland wildlife habitat, and homesite development and as irrigated cropland and pastureland.

The main limitation of this unit for livestock grazing and rangeland wildlife habitat is the low average annual precipitation. The Saralegui and Wedertz soils are also limited by the coarse surface texture, and the Wellington soils are limited by a very low available water capacity.

The main limitations for irrigated cropland are the low available water capacity of the surface layer of the Saralegui soils, the hazard of soil blowing on the Saralegui and Wedertz soils, and a shallow depth to an indurated hardpan in the Wellington soils. Steepness of slope also limits the Wedertz and Wellington soils for this use.

This unit is moderately suited to homesite development. The main limitations are the highly expansive clay in the Wedertz soils, the hardpan in the Wellington soils, and the instability of excavations and inadequate filtration of septic tank effluent in the Saralegui soils. Steepness of slope limits all soils in some areas.

4. Patna-Hough-Rusty

Nearly level to moderately steep, very deep, well drained and somewhat excessively drained soils; on dunes, high lake terraces, and lake plains

This map unit makes up about 2 percent of the survey area. It is mainly in Churchill Valley, in the north-central part of the area. The vegetation is mainly Indian ricegrass, fourwing saltbush, and shadscale.

The Patna soils are nearly level to moderately steep and are somewhat excessively drained. They are on dunes and lake plains. These soils have a dominantly coarse textured surface layer, moderately coarse textured subsoil, and coarse textured substratum. They are in areas subject to eolian deposition.

The Hough soils are nearly level and well drained. They are on lake plains and lake terraces. These soils have a dominantly coarse textured surface layer, moderately fine textured subsoil, and coarse textured substratum.

The Rusty soils are nearly level and well drained. They are on lake plains. These soils dominantly have a coarse textured surface layer and a medium or moderately fine textured subsoil over stratified coarse to medium textured lake sediment. They are on the higher parts of lake plains.

Of minor extent in the unit are Bango, Hawsley, and Isolde soils. Bango soils are on lake terraces and have a medium or moderately fine textured subsoil that is alkali-affected. Hawsley soils are on lake terraces, and Isolde soils are on dunes superimposed over lake terraces. They are coarse textured throughout the profile.

This unit is used mainly for livestock grazing, rangeland wildlife habitat, and homesite development. Some small areas are used as irrigated cropland and pastureland.

The main limitation of this unit for livestock grazing and rangeland wildlife habitat is the low average annual precipitation.

The main limitations of this unit for irrigated crops and pasture is a rapid infiltration rate and low available water capacity of the surface layer. The Hough and Rusty soils are also limited by the hazard of soil blowing.

This unit is moderately suited to homesite development. The main limitation is the instability of excavations. The Patna and Hough soils may have inadequate filtration capacity for septic tank effluent.

Areas Dominated by Soils on Alluvial Fans and Terraces

This group consists of four map units. The soils in this group are on alluvial fans and stream terraces above flood plains and lake plains and below foothills and mountains. Elevation is 4,300 to 7,600 feet. The average annual precipitation is 4 to 12 inches, the average annual temperature is 47 to 52 degrees F, and the frost-free season is 90 to 130 days.

The soils in this group are well drained and nearly level to strongly sloping. Most of the soils are very deep, but some are shallow or moderately deep over a hardpan. The soils are fine textured to coarse textured. Some of the soils have a silica cementation, and many have an increase of clay in the subsoil.

5. Malpais-Yerington-Pizene

Nearly level to strongly sloping, very deep, well drained soils; on alluvial fans and stream terraces

This map unit makes up about 12 percent of the survey area. It is on alluvial fans and terraces below hills and mountains in the northeastern part of the area. The vegetation is mainly shadscale, Bailey greasewood, and Indian ricegrass.

The Malpais soils are gently sloping to strongly sloping. They are on alluvial fans. These soils are dominantly very gravelly, very cobbly, or very stony and moderately coarse textured throughout the profile.

The Yerington soils are nearly level to strongly sloping. They are on wind-worked alluvial fans. These soils are dominantly coarse textured in the upper part and stratified coarse to medium textured in the lower part.

The Pizene soils are nearly level to gently sloping. They are on wind-worked alluvial fans and stream terraces. These soils have a dominantly moderately coarse textured surface layer, a medium or moderately fine textured subsoil that is alkali-affected, and a moderately coarse textured substratum.

Of minor extent in this unit are Bluewing Variant, Delp, Isolde, and Yerington Variant soils. The Delp and Isolde soils are dominantly moderately coarse or coarse textured. They are on dunes and hummocks and support Indian ricegrass, hairy horsebrush, and black greasewood. The fine textured Bluewing Variant soils and the medium textured Yerington Variant soils are on remnants of old lacustrine landscapes. They support black greasewood and fourwing saltbush.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. Some areas are used as irrigated cropland and for homesite development.

The main limitation of this unit for livestock grazing and rangeland wildlife habitat is the low average annual precipitation.

The main limitation of this unit for irrigated cropland is low available water capacity of the Malpais and Yerington soils. The Malpais soils are also limited by large stones and cobbles, the Yerington soils by the rapid water infiltration rate of the surface layer, and the Pizene soils by a high concentration of alkali in the subsoil. Slope also limits some areas of the Malpais and Yerington soils.

This unit is moderately suited to homesite development. The Yerington soils are limited by inadequate filtration of septic tank effluent and instability of excavations, and the Malpais soils by the content of large stones and cobbles. The Pizene soils have few limitations.

6. Veta-Hotsprings-Haybourne

Nearly level to strongly sloping, very deep, well drained soils; on recent alluvial fans and stream terraces

This map unit makes up about 2 percent of the survey area. It is mainly in the west-central part of the area, in Smith Valley. It is on alluvial fans below granitic mountains. The vegetation is mainly Wyoming big sagebrush and bottlebrush squirreltail.

The Veta soils are gently sloping to strongly sloping. They are on recent alluvial fans and stream terraces. These soils are dominantly very gravelly or extremely gravelly and moderately coarse textured throughout the profile.

The Hotsprings soils are nearly level to moderately sloping. They are on alluvial fans. These soils are

dominantly gravelly and coarse textured throughout the profile.

The Haybourne soils are nearly level. They are on alluvial fans. These soils are dominantly medium textured in the upper part and moderately coarse textured in the lower part.

Of minor extent in this unit are Charlebois, Holbrook, and Rebel soils. The Charlebois soils have a moderately fine textured subsoil, Holbrook soils are stony throughout the profile, and Rebel soils are moderately coarse textured throughout the profile.

This unit is used mainly as irrigated cropland and for homesite development, livestock grazing, and rangeland wildlife habitat.

The main limitation of this unit for livestock grazing and rangeland wildlife habitat is the low average annual precipitation. The Veta and Hotsprings soils are also limited by low available water capacity.

The main limitation of this unit for irrigated cropland is low or moderate available water capacity. The Hotsprings soils also are limited by a rapid water infiltration rate, and the Veta soils by a large content of rock fragments in the profile. Slope also limits some areas of the Hotsprings and Veta soils.

This unit is moderately suited to homesite development. The main limitations are inadequate filtration of septic tank effluent and instability of excavations on the Haybourne and Hotsprings soils. The Veta soils are limited by a large content of rock fragments in the profile. Some areas of Haybourne and Veta soils are flooded during high intensity storms.

7. Cleaver-Rawe-Perazzo

Nearly level to moderately steep, shallow and very deep, well drained soils; on alluvial fans

This map unit makes up about 9 percent of the survey area. It is throughout the central and eastern part of the area. It is on older alluvial fans between the surrounding hills, lake plains, and flood plains. The vegetation is mainly Bailey greasewood, shadscale, and Indian ricegrass.

The Cleaver soils are shallow and gently sloping to moderately steep. These soils have a medium textured surface layer and a gravelly, medium and moderately fine textured subsoil over a hardpan.

The Rawe soils are very deep and gently sloping to strongly sloping. These soils have a thin, medium textured surface layer and a fine textured subsoil over a very gravelly or extremely gravelly, moderately coarse textured substratum.

The Perazzo soils are very deep and nearly level to strongly sloping. These soils have a very gravelly, medium textured surface layer and a very gravelly, moderately fine textured subsoil over an extremely gravelly, coarse textured substratum.

Of minor extent in this unit are Biddleman, Gamgee, Hawsley, Lox, Risue, and Smedley soils. The Biddleman, Gamgee, and Lox soils are alkali-affected in the subsoil. The Hawsley soils are coarse textured throughout the profile. The Risue and Smedley soils have a fine textured subsoil.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. The main limitation is the low average annual precipitation. The Cleaver soils are also limited by the shallow depth to the hardpan.

8. Fulstone-Shree-Reno

Gently sloping to moderately steep, shallow, moderately deep, and very deep, well drained soils; on alluvial fans

This map unit makes up about 7 percent of the survey area. It is in the extreme western and southern parts of the area. It is on older alluvial fans below the higher mountains. The vegetation is mainly Wyoming big sagebrush, low sagebrush, and Thurber needlegrass.

The Fulstone soils are shallow and gently sloping to moderately steep. These soils have a medium textured surface layer and a fine textured subsoil over a hardpan.

The Shree soils are very deep and moderately sloping. These soils have a very gravelly, medium textured surface layer and a dominantly very gravelly or extremely gravelly, moderately fine textured subsoil over a very gravelly or extremely gravelly, medium textured substratum.

The Reno soils are moderately deep and gently sloping to strongly sloping. These soils have a medium textured surface layer and a fine textured subsoil over a hardpan.

Of minor extent in this unit are Ackley, Hunewill, and Stucky soils. The Ackley soils have a moderately fine textured subsoil over a moderately coarse textured substratum. The Hunewill soils have textures dominantly modified with cobbles and gravel, and the Stucky soils have textures dominantly modified with cobbles.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. Some areas are used for homesite development.

The main limitation of this unit for livestock grazing and rangeland wildlife habitat is the low average annual precipitation. The Fulstone soils are also limited by low available water capacity and shallow rooting depth.

This unit is poorly suited to homesite development. The main limitations are the hardpan of the Fulstone soils, slow permeability and hazard of flooding on the Shree soils, and the content of highly expansive clay, the hardpan, and inadequate infiltration of effluent in the Reno soils. Slope is also a limitation in some areas.

Areas Dominated by Soils on High Terraces, Foothills, and Low Mountains

This group consists of four map units. Most of the soils in this group are on low mountains, foothills, and remnants of high terraces. Elevation is 4,300 to 7,500

feet. The average annual precipitation is 4 to 12 inches, the average annual air temperature is 46 to 52 degrees F, and the frost-free season is 90 to 130 days.

These soils are very shallow and shallow and are well drained and somewhat excessively drained. Areas of these soils on rounded hills and tops of terraces or plateaus are gently sloping to moderately steep, and the areas on hills and mountainsides and dissected side slopes of Tertiary sediment are moderately steep to very steep.

9. Pirouette-Vylach-Weena

Nearly level to steep, very shallow and shallow, well drained soils; on terraces and plateaus

This map unit makes up about 8 percent of the survey area. It is along the northern and southern boundaries and throughout parts of the middle of the area. It is on plateaus and dissected terraces. The vegetation is mainly Bailey greasewood, shadscale, and Indian ricegrass.

The Pirouette soils are shallow and nearly level to moderately steep. They are on plateaus. These soils have a dominantly very stony, moderately coarse textured surface layer and a very cobbly, moderately fine textured subsoil over a hardpan. The hardpan is underlain by bedrock.

The Vylach soils are shallow and gently sloping to moderately sloping. They are on the tops of old dissected terraces. These soils have a dominantly gravelly, moderately coarse textured surface layer and a moderately fine textured subsoil over a strongly cemented hardpan. The hardpan is underlain by soft bedrock.

The Weena soils are very shallow and are moderately steep and steep. They are on the side slopes of dissected terraces. These soils are dominantly medium textured and are underlain by bedrock.

Of minor extent in this unit are Celeton, Haar, Osobb, and Ravenell soils. The Celeton, Haar, and Ravenell soils are very shallow to bedrock, and the Osobb soils are very shallow to a hardpan. The Ravenell soils support galleta and low sagebrush. The Haar soils support sparse stands of Wyoming big sagebrush and desert needlegrass.

This unit is used for livestock grazing and rangeland wildlife habitat. The main limitations are the low average annual precipitation, very low available water capacity, and restricted rooting depth.

10. Berit-Chill-Minneha

Moderately sloping to very steep, very shallow and shallow, well drained and somewhat excessively drained soils; on hills and low mountains

This map unit makes up about 4 percent of the survey area. It is in the Pine Grove Hills and Pine Nut Mountains. The vegetation on the Chill and eroded Berit soils is mainly Wyoming big sagebrush and desert needlegrass. The vegetation on the Minneha and noneroded Berit soils is mainly pinyon and juniper.

The Berit soils are very shallow, somewhat excessively drained, and moderately sloping to steep. They are on mountainsides and rounded crests. These soils have a dominantly very gravelly, coarse textured surface layer and a very gravelly, moderately fine textured subsoil over bedrock.

The Chill soils are very shallow, well drained, and moderately sloping to moderately steep. They are on low hills. These soils have a dominantly gravelly, moderately coarse textured surface layer and a gravelly, moderately fine textured subsoil over bedrock.

The Minneha soils are shallow, somewhat excessively drained, and steep and very steep. They are on mountainsides. These soils are dominantly dark colored, extremely stony, moderately coarse textured material over bedrock.

Of minor extent in this unit are Holbrook Variant, Surgem, and Trid soils. These soils are moderately deep to bedrock. The Holbrook Variant and Trid soils support mountain big sagebrush, Thurber needlegrass, and antelope bitterbrush. The Surgem soils support low sagebrush, Thurber needlegrass, and antelope bitterbrush.

This unit is used for livestock grazing and wildlife habitat. The main limitations are the very low available water capacity, restricted rooting depth, and steepness of slope.

11. Theon-Singatse-Mirkwood

Strongly sloping to very steep, very shallow, well drained and somewhat excessively drained soils; on hills and low mountains

This map unit makes up about 17 percent of the area. It is in the central and eastern parts of the area. It is on arid hills and low mountains. The vegetation is mainly Bailey greasewood, shadscale, and Indian ricegrass.

The Theon soils are well drained and strongly sloping to very steep. They are on foothills and low mountains. These soils have a dominantly gravelly and stony, medium and moderately coarse textured surface layer and a very gravelly, moderately fine textured subsoil over bedrock.

The Singatse soils are somewhat excessively drained and strongly sloping to very steep. They are on hills and low mountains. These soils are dominantly very gravelly, moderately coarse textured material over bedrock.

The Mirkwood soils are well drained and moderately steep to very steep. They are on mountainsides. These soils have a dominantly very cobbly and extremely stony, moderately coarse textured surface layer and a very gravelly, medium and moderately fine textured subsoil over bedrock.

Of minor extent in this unit are Nemico, Old Camp, and Uripnes soils. The Nemico soils are shallow to a hardpan and support galleta and shadscale. The Old Camp soils on north-facing side slopes are cobbly and stony and support Wyoming big sagebrush and bottlebrush squirreltail. The Uripnes soils are very shallow to soft bedrock and support desert needlegrass and littleleaf horsebrush.

This unit is used for livestock grazing and rangeland wildlife habitat. The main limitations are the low average annual precipitation, very low available water capacity, and very shallow rooting depth.

12. Lapon-Olac-Wile

Moderately sloping to very steep, very shallow and shallow, well drained soils; on hills and low mountains

This map unit makes up about 11 percent of the survey area. It is in the western part of the area. It is on foothills and low mountains of the Pine Nut Mountains and Pine Grove Hills. The vegetation is mainly low sagebrush and pine bluegrass on the Lapon soils and pinyon and juniper on the Wile soils.

The Lapon soils are very shallow and moderately sloping to steep. They are on hills and mountains. These soils have a dominantly extremely stony, medium textured surface layer and a very gravelly, moderately fine textured subsoil over a hardpan. The hardpan is underlain by bedrock.

The Olac soils are very shallow and strongly sloping to very steep. They are on hills and mountains. These soils have a dominantly very stony, medium textured surface layer and an extremely gravelly, moderately fine textured subsoil over bedrock.

The Wile soils are shallow and moderately steep. They are on mountainsides and ridges. These soils have a dominantly gravelly, moderately coarse textured surface layer and a gravelly, fine textured subsoil over weathered bedrock.

Of minor extent in this unit are the Koontz, Loomis, Reno Variant, Rowel, Zephan, and Zyzzi soils. The Loomis and Zephan soils dominantly have a very gravelly, fine textured subsoil and support low sagebrush and Thurber needlegrass. The very gravelly, moderately fine textured Koontz soils and the medium textured Reno Variant soils support Wyoming big sagebrush, Thurber needlegrass, and desert needlegrass. The Rowel and Zyzzi soils are very shallow and support low sagebrush and galleta.

This unit is used for livestock grazing and rangeland wildlife habitat. The main limitations are the very low available water capacity and restricted rooting depth.

Areas Dominated by Soils on Alluvial Fans, and High Plateaus

This group consists of three map units. The soils in this group are mainly on mountainsides. Some soils are on alluvial fans and plateaus. Elevation is 5,000 to 10,000 feet. The average annual precipitation is 8 to 16 inches, the average annual air temperature is 40 to 50 degrees F, and the frost-free season is 70 to 110 days.

These soils are well drained. The areas on alluvial fans and plateaus are gently sloping to moderately steep, and the areas on the mountainsides are strongly sloping to very steep. Most of the soils are shallow to very deep over bedrock; some are shallow over a hardpan.

13. Ister-Hyloc-Cagle

Moderately steep to very steep, shallow and moderately deep, well drained soils; on mountainsides

This map unit makes up about 11 percent of the survey area. It is mainly in the western part of the area. It is on mountainsides. The vegetation is mainly Wyoming big sagebrush and Thurber needlegrass on the Ister soils and pinyon and juniper on the Cagle and Hyloc soils.

The Ister soils are moderately deep and are steep and very steep. They are mainly on south- and west-facing side slopes. These soils have a dominantly extremely stony, moderately coarse textured surface layer and a very stony, moderately fine textured subsoil over bedrock.

The Hyloc soils are shallow and are moderately steep and steep. They are mainly on south- and west-facing side slopes. These soils dominantly have a very cobbly, moderately coarse textured surface layer and a fine textured subsoil over weathered bedrock.

The Cagle soils are moderately deep and are moderately steep and steep. They are mainly on south- and west-facing side slopes. These soils have a dominantly very stony, medium and moderately fine textured surface layer and a gravelly, fine textured subsoil over weathered bedrock.

Of minor extent in this unit are Drit, Duco, Flex, Nosrac, and Springmeyer soils. The Drit, Flex, and Nosrac soils have a dominantly very gravelly subsoil, and the Springmeyer soils have a gravelly subsoil. The vegetation on these soils in mainly Wyoming big sagebrush and Thurber needlegrass. The Duco soils have a stony and cobbly subsoil and mainly support pinyon and juniper.

This unit is used as woodland and for livestock grazing and rangeland wildlife habitat. The main limitations are steepness of slope and restricted rooting depth. Surface stones may hinder access for cutting trees in some areas.

14. Lunder-Glean-Devils

Gently sloping to steep, shallow to very deep, well drained soils; on alluvial fans, high plateaus, and mountainsides

This map unit makes up about 2 percent of the survey area. It is in the southern and west-central parts of the area. The soils in this unit are on high mountains, plateaus, and old alluvial fans at elevations of 6,000 to 9,000 feet. The vegetation is mainly mountain big sagebrush and western needlegrass on the Glean soils and low sagebrush and Thurber needlegrass on the Devils and Lunder soils.

The Lunder soils are shallow and gently sloping to strongly sloping. They are on old alluvial fans. These soils have a dominantly very cobbly, medium textured surface layer and a cobbly, fine textured subsoil over a hardpan.

The Glean soils are deep and very deep and are strongly sloping to steep. They are on mountainsides. These soils have a dominantly gravelly or cobbly, medium textured surface layer and a very cobbly and very gravelly, medium and moderately coarse textured substratum underlain by bedrock.

The Devils soils are moderately deep and moderately sloping to moderately steep. They are on high plateaus. These soils have a dominantly very cobbly, medium textured surface layer and a gravelly, moderately fine textured subsoil over weathered bedrock.

Of minor extent in this unit are Devils Variant, Fulstone Variant, and Ravenell Variant soils. The Devils Variant soils are moderately deep; they have a gravelly, moderately fine textured subsoil and support mountain big sagebrush and western needlegrass. The Fulstone Variant soils have a fine textured subsoil and are moderately deep. The Ravenell Variant soils have a gravelly, fine textured subsoil and are shallow. The Fulstone Variant and Ravenell Variant soils support low sagebrush and Thurber needlegrass.

This unit is used for livestock grazing and rangeland wildlife habitat. The main limitations are very low available water capacity and shallow rooting depth of the Lunder soils and steepness of slope of the Devils and Glean soils.

15. Bradshaw-Hartig-Glean Variant

Moderately steep to very steep, moderately deep, deep, and very deep, well drained soils; on mountainsides

This map unit makes up about 1 percent of the survey area. It is in the western part of the survey area in the Sweetwater and Pine Nut Mountains. The soils in this unit are on side slopes of high mountain peaks. The vegetation is mainly curlleaf mountainmahogany on the Bradshaw and Glean Variant soils and mountain big sagebrush and western needlegrass on the Hartig soils.

The Bradshaw soils are deep and are moderately steep and steep. These soils are dominantly extremely stony and extremely cobbly, moderately coarse textured material over bedrock.

The Hartig soils are deep and very deep and are steep. These soils are dominantly very gravelly, moderately coarse textured material over bedrock.

The Glean Variant soils are moderately deep and very steep. These soils are dominantly gravelly, coarse textured material over weathered bedrock.

Of minor extent in this unit are Burnborough, Hartig Variant, and Ticino soils. The Burnborough soils are very deep and have a dominantly very stony surface layer and a very gravelly, moderately fine textured subsoil. The Hartig Variant soils are shallow and are extremely gravelly. The Burnborough and Hartig Variant soils support mountain big sagebrush and western needlegrass. The Ticino soils are moderately deep and have a gravelly, moderately fine textured subsoil over bedrock. They support curlleaf mountainmahogany.

This unit is used for limited livestock grazing and rangeland wildlife habitat. The main limitation is steepness of slope. Cool temperatures of the Glean Variant soils also limit plant growth.

Broad Land Use Considerations

The soils in the survey area vary widely in their potential for major land uses such as cropland, pastureland, rangeland, wildlife habitat, and homesite development. Extensive changes in land use are not expected in the foreseeable future; however, a slow, steady growth in homesite development and industrialization is expected.

Approximately 89 percent of the land in the survey area is used for rangeland and related uses. These areas need careful management. General map units 11, 12, and 13 have the highest potential for producing forage. Because these soils produce more palatable plants, there is a tendency for them to be overused, resulting in range deterioration. Map unit 14 produces much forage but has poor accessibility because of the high, steep slopes. Map units 4, 6, 7, 8, 9, and 10 are used extensively as rangeland. In general, the main limitation is the lack of adequate precipitation. Many of the soils in these units also have limited available water capacity because of limited depth to a hardpan or to bedrock or because they have a high content of rock fragments.

Approximately 3 percent of the land in the survey area is used for pasture and meadow hay. Map unit 1 is mainly well suited to and is extensively used for pasture and meadow hay. Some of the soils in this unit are limited for hay and pasture by the content of salt and alkali.

About 8 percent of the land in the survey area is used for cultivated crops. Another 4 percent of the area would be suitable for crops if irrigation water was made available. The main crops grown are wheat, barley, alfalfa hay, irrigated pasture, onions, garlic, and potatoes. Most areas of map units 2, 3, and 5 are used as cropland. Many areas of map unit 1 are suitable for use as cropland if drainage is provided and the content of

toxic salts is reduced. Map unit 4 and some areas of map unit 6 are suitable for use as cropland if irrigated.

Almost all of the land in the survey area is used by one or more kinds of wildlife. The openland wildlife common to the area includes pheasant, quail, rabbits, songbirds, and coyote. Map units 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 are used extensively by these species. The availability of food, cover, and water provided by the areas of cropland, thickets, brushy areas, and pastures make these units attractive to wildlife. Wildlife habitat can be improved by planting selected species of vegetation to attract desired wildlife species.

Wetland wildlife common to the area are ducks, geese, muskrat, beaver, and shore birds. Map unit 1 is the only area that extensively supports wetland wildlife. Some of the soils in this unit support wetland plants. Shallow water areas have been established in areas of these soils to provide improved wetland wildlife habitat. There is a good potential for establishment of more of this type of habitat within this area; however, much of the area has been artificially drained to improve production of cultivated crops and pasture.

The upper parts of the east and west forks of Walker River and Desert Creek support trout fisheries. These streams are stocked regularly and are fished heavily. The lower reaches of the Walker River and the Carson River have natural populations of catfish, whitefish, and carp. Lahontan Reservoir contains bass, perch, catfish, and trout. Many of the farms in the area have small ponds which contain bass, perch, catfish, and trout.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Dia loam is one of several phases in the Dia series.

Some map units are made up of two or more major soils. These map units are called soil complexes and soil associations.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Dia-Sagouspe complex is an example.

A *soil association* is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. Delp-Lox association is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

The range site number given for soils at the end of the map unit descriptions coincides with the last part of the range site name on table 6.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

This survey was mapped at two levels of detail. At the most detailed level, map units are narrowly defined. This means that soil boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Soil boundaries were plotted and verified at wider intervals. The narrowly defined units are indicated by an asterisk in the soil map legend. The detail of mapping was selected to meet the anticipated long-term use of the survey, and the map units were designed to meet the needs for that use.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Map Unit Descriptions

101—Ackley sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 4,600 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 10 inches thick. The subsoil is brown and yellowish brown sandy loam and loam about 24 inches

thick. The substratum to a depth of 60 inches or more is light yellowish brown fine sandy loam.

Included in this unit are about 7 percent Hunewill soils intermingled throughout the unit (range site 26-16), 4 percent Ackley Variant soils on toe slopes of alluvial fans in the Moundhouse area (range site 26-12), 2 percent Reno soils on convex alluvial fans (range site 26-25), and 2 percent Veta soils in drainageways and on associated alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Ackley soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing, irrigated cultivated crops and hay, and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Wyoming big sagebrush, Indian ricegrass, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

This unit is well suited to irrigated hay and pasture. Leveling helps to insure the uniform application of water.

This unit is well suited to irrigated cultivated crops. It has few limitations. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. For the efficient application and removal of irrigation water, leveling is needed in sloping areas.

If this unit is used for building foundations, the effects of shrinking and swelling are minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

The main limitation of this unit for septic tank absorption fields is the moderate permeability of the soil. This limitation can be overcome by increasing the size of the absorption field.

This unit is limited for roads because of the moderate potential for frost heaving and the moderate content of highly expansive clay. Damage is minimized and maintenance cost reduced by providing roads with adequate surface drainage, a stable base, and an adequate wearing surface.

This map unit is in capability subclasses IIc, irrigated, and VIc, nonirrigated. It is in range site 26-16.

102—Ackley gravelly sandy loam, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 4,600 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown gravelly sandy loam about 10 inches thick. The subsoil is brown and yellowish brown sandy loam and loam about 24 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown fine sandy loam.

Included in this unit are about 7 percent Hunewill soils on alluvial fans (range site 26-16), 4 percent Ackley Variant soils that have a gypsiferous substratum and are on toe slopes of alluvial fans in the Moundhouse area (range site 26-12), 2 percent Reno soils on convex fan remnants (range site 26-25), and 2 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Ackley soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and for irrigated cultivated crops, hay, and pasture. It is also used for homesite development and wildlife habitat.

The potential plant community on this unit is mainly Wyoming big sagebrush, Indian ricegrass, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion.

If this unit is used for homesite development, the effects of shrinking and swelling are minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

If the unit is used for septic tank absorption fields, the limitation of moderate permeability can be overcome by increasing the size of the absorption field.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIe, irrigated, and VIc, nonirrigated. It is in range site 26-16.

103—Ackley-Ackley Variant complex. This map unit is on alluvial fans. Slope is 0 to 2 percent. Elevation is 4,300 to 4,600 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Ackley sandy loam and 35 percent Ackley Variant sandy loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Hunewill soils intermingled throughout the unit (range site 26-16) and 5 percent Gypsum land, mostly on slope breaks. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Ackley soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown sandy loam about 10 inches thick. The subsoil is brown and yellowish brown sandy loam and loam about 24 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown fine sandy loam.

Permeability of this Ackley soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Ackley Variant soil is very deep and well drained. It formed in alluvium derived dominantly from basic igneous rock and in gypsum. Typically, the surface layer is brown sandy loam about 7 inches thick. The subsoil is yellowish brown and pale brown loam and silt loam about 14 inches thick. The substratum to a depth of 60 inches or more is white, gypsiferous fine sandy loam. Depth to the gypsiferous substratum ranges from 20 to 40 inches.

Permeability of this Ackley Variant soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly affected by salts and alkali throughout the profile.

This unit is used mainly for livestock grazing and irrigated cultivated crops. It is also used for homesite development.

The potential plant community on the Ackley soil is mainly Wyoming big sagebrush, Indian ricegrass, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitation is the low average annual precipitation.

The potential plant community on the Ackley Variant soil is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood, basin big sagebrush, and basin wildrye. The production of forage is limited by the low average annual precipitation, the very low available water capacity, and the slightly saline and alkali condition of the soil. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and the slightly saline surface layer.

Seeding of large areas of the more favorable Ackley soil in this unit is difficult because of the pattern in which they occur with areas of the less favorable Ackley Variant soil.

This unit is suited to irrigated hay and pasture. Leveling helps to insure the uniform application of water.

This unit is suited to irrigated cultivated crops. It is limited mainly by the restricted rooting depth and the very low available water capacity of the Ackley Variant soil. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. In the Ackley Variant soil, cuts required for leveling should leave at least 10 inches of soil material above the gypsiferous layer.

The main limitation for construction of dwellings on this unit is the potential for uneven settling of structures because of the dissolving of gypsum when water is applied to the Ackley Variant soil. A thorough site investigation is needed to avoid areas that are underlain by gypsiferous material. The effects of shrinking and swelling are minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

The main limitation of this unit for septic tank absorption fields is the moderate permeability of the Ackley soil. This limitation can be overcome by increasing the size of the absorption field.

This unit is limited for roads because of the moderate potential for frost heaving and the moderate content of expansive clay. Damage is minimized and maintenance cost reduced by providing roads with adequate surface drainage, a stable base, and an adequate wearing surface.

This map unit is in capability subclasses IIc, irrigated, and VIc, nonirrigated. The Ackley soil is in range site 26-16, and the Ackley Variant soil is in range site 26-12.

121—Appian loamy sand. This very deep, well drained soil is on lake terraces. It formed in loamy alluvium over lacustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 3,900 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The subsoil is brown sandy

clay loam about 10 inches thick. The substratum to a depth of 60 inches or more is light brownish gray sand that has mottles. In some areas the substratum contains layers and lenses of silty material.

Included in this unit are about 5 percent Isolde soils on stabilized dunes (range site 27-23), 3 percent Wabuska soils in shallow depressional areas (range site 27-6), and 2 percent Orizaba soils along abandoned stream channels (range site 26-12). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Appian soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is slightly salt- and alkali-affected to a depth of 18 inches.

Most areas of this unit are used for livestock grazing. A few areas are used for irrigated cultivated crops.

The potential plant community on this unit is mainly black greasewood, basin big sagebrush, and basin wildrye. The present vegetation in most areas is mainly black greasewood, rabbitbrush, basin big sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for irrigated cultivated crops, the main limitations are the slightly saline and alkali surface layer and subsoil. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Cuts required for leveling should not extend into the sandy substratum. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Subsoiling increases the water intake rate and allows salts to be leached downward.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 26-12.

122—Appian loam. This very deep, well drained soil is on lake terraces. It formed in loamy alluvium over lacustrine sediment derived from from various kinds of rock. Slope is 0 to 2 percent. Elevation is 3,900 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

Typically, the surface layer is light brownish gray loam about 8 inches thick. The subsoil is brown sandy clay loam about 10 inches thick. The substratum to a depth of 60 inches or more is light brownish gray sand that has mottles. In some areas the substratum contains thin layers and lenses of silty material.

Included in this unit are about 5 percent Isolde soils on stabilized dunes and hummocks, 3 percent Wabuska soils in shallow depressional areas, and 2 percent Orizaba soils in shallow depressional areas along shallow stream channels. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Appian soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected to a depth of 18 inches.

This unit is used for irrigated cultivated crops and homesite development.

If this unit is used for irrigated cultivated crops, the main limitation is the content of salts and alkali in the surface layer and subsoil. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Cuts required for leveling should not extend into the sandy substratum. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Subsoiling increases the water intake rate and allows salts to be leached downward.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated.

123—Appian-Wabuska complex. This map unit is on old lake terraces and alluvial flats. Slope is 0 to 2 percent. Elevation is 4,300 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

This unit is 50 percent Appian loamy sand and 35 percent Wabuska loam. The Appian soil is on dissected remnants of low lake terraces, and the Wabuska soil is on alluvial flats in slightly lower lying areas that have a puddled, crusted surface. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Isolde soils on stabilized dunes and low hummocks (range site 27-23), 4 percent Delp soils on stabilized dunes and small hummocks (range site 27-16), 3 percent Orizaba soils in

shallow depressional areas (range site 27-5), and 3 percent Playas in depressional areas. Also included are small areas of soils that have a dark fine-textured surface layer. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Appian soil is very deep and well drained. It formed in loamy alluvium over lacustrine sediment derived from various kinds of rock. Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The subsoil is brown sandy clay loam about 10 inches thick. The substratum to a depth of 60 inches or more is light brownish gray sand that has mottles.

Permeability of the Appian soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Wabuska soil is very deep and somewhat poorly drained. It formed in alluvial material derived from various kinds of rock. Typically, the surface layer is light gray and pale brown loam about 9 inches thick. The underlying material to a depth of 60 inches or more is stratified, light brownish gray and pale brown, mottled fine sandy loam, silt loam, sandy loam, and sand.

Permeability of the Wabuska soil is moderate. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table at a depth of 30 to 42 inches from May to July. Runoff is very slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. In some areas the underlying material is slightly affected by salts and alkali.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Appian soil is mainly black greasewood, basin big sagebrush, and basin wildrye. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and basin big sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Wabuska soil is mainly basin wildrye, inland saltgrass, and black greasewood. The present vegetation in most areas is mainly black greasewood and inland saltgrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Grazing should be delayed until the soils in this unit have drained sufficiently and are firm enough to withstand trampling by livestock. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

The Wabuska soil is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. Roads can easily be constructed and maintained on the Appian soil.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. The Appian soil is in range site 26-12, and the Wabaska soil is in range site 27-6.

124—Appian-Delp complex, 0 to 15 percent slopes. This map unit is on old lake terraces and lake plains. Elevation is 4,300 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

This unit is 50 percent Appian loamy sand that has slopes of 0 to 2 percent and 40 percent Delp fine sand that has slopes of 2 to 15 percent. The Appian soil is on old dissected lake terraces and lake plains, and the Delp soil is on stabilized dunes and hummocks on lake plains. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Orizaba soils that are in shallow depressional areas and have a high water table (range site 27-5) and 5 percent Wabuska soils in shallow depressional areas (range site 27-6). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Appian soil is very deep and well drained. It formed in alluvium over lacustrine sediment derived from various kinds of rock. Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The subsoil is brown sandy clay loam about 10 inches thick. The substratum to a depth of 60 inches or more is light brownish gray sand that has mottles.

Permeability of the Appian soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Delp soil is very deep and well drained. It formed in eolian sand derived from granitic rock. Typically, the surface layer is light gray fine sand about 1 inch thick. The underlying material to a depth of 60 inches or more is light gray fine sand that has thin layers and lamellae of sandy loam.

Permeability of the Delp soil is moderate. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing, wildlife habitat, and homesite development.

The potential plant community on the Appian soil is mainly black greasewood, basin big sagebrush, and basin wildrye. The present vegetation in most areas is mainly black greasewood, basin big sagebrush, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Delp soil is mainly Indian ricegrass, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly black greasewood, hairy horsebrush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

Strongly sloping areas are a concern for the construction of dwellings on the Delp soil. The Appian soil is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

To minimize cutting and filling, roads on the Delp soil should be located in the less sloping areas. When this soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing. Erosion is minimized and maintenance cost reduced by providing roads with a durable wearing surface. Roads can easily be constructed and maintained on the Appian soil.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. The Appian soil is in range site 26-12, and the Delp soil is in range site 27-16.

141—Bango sandy loam. This very deep, well drained soil is on smooth lake terraces. It formed in stratified lacustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,000 to 4,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray sandy loam about 2 inches thick. The subsoil is brown sandy clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is stratified and averages silt loam or fine sandy loam that is pale brown to light gray.

Included in this unit are about 10 percent Lahonton soils in broad flat areas in the lower part of the unit (range site 27-25) and 5 percent Patna soils in slightly elevated areas, mostly in the upper part of the unit (range site 27-9). Also included are small areas of soils that have a thick, sandy surface layer. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Bango soil is moderately slow. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly affected by salts and alkali throughout the profile. It is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and homesite development. It can be used for irrigated cultivated crops if irrigation water is made available.

The potential plant community on this unit is mainly Indian ricegrass, bottlebrush squirreltail, and shadscale. The present vegetation in most areas is mainly Bailey greasewood and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the slightly saline and alkali surface layer.

The main limitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-18.

142—Bango very gravelly loamy sand. This very deep, well drained soil is on smooth and slightly dissected lake terraces. It formed in stratified lacustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,000 to 4,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is very pale brown very gravelly loamy sand about 2 inches thick. The subsoil is brown sandy clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is stratified, pale brown to light gray loamy sand, sandy loam, and silt loam. In some areas the surface layer is thick and sandy.

Included in this unit are about 5 percent Lahonton soils in broad flat areas, mainly in the lower part of the unit (range site 27-25), and 5 percent Patna soils in slightly elevated areas, mainly in the upper part of the unit (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Bango soil is moderately slow. Available water capacity is high. Effective rooting depth

is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. This soil is slightly affected by salts and alkali throughout the profile.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for irrigated cultivated crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, bottlebrush squirreltail, and shadscale. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and halogeton. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the slightly saline and alkali surface layer.

If this unit is used for irrigated cultivated crops, the main limitation is the slightly saline and alkali condition of the soil. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown.

The main limitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-18.

151—Bluewing Variant clay, 2 to 8 percent slopes. This very deep, well drained soil is on alluvial flats that have some channels. It formed in fine textured lacustrine sediment derived from various kinds of rock. Elevation is 4,500 to 4,700 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray clay about 3 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray clay.

Included in this unit are about 7 percent Lahonton soils in low-lying areas (range site 27-25), 4 percent Orizaba soils in shallow depressional areas (range site 26-12), and 4 percent Pizene soils on terraces (range site 26-12). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Bluewing Variant soil is very slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Bailey greasewood, shadscale, black greasewood, and Indian ricegrass. The present vegetation in most areas is mainly black greasewood, shadscale, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the content of highly expansive clay that has low load-bearing capacity. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-24.

161—Bluewing very gravelly sand, 2 to 8 percent slopes. This very deep, excessively drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,200 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown very gravelly sand about 3 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very gravelly loamy coarse sand or very gravelly sand that is grayish brown.

Included in this unit are about 10 percent Malpais soils on alluvial fans (range site 27-18) and 5 percent Toulon soils on high lake terraces and bars (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Bluewing soil is very rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding in July through September.

This unit is used for livestock grazing, wildlife habitat, and homesite development.

The potential plant community on this unit is mainly shadscale, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, spiny hopsage, and some Indian ricegrass. The production of forage is limited by the very low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity.

The main limitation for construction of dwellings is occasional periods of flooding. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

The main limitation for septic tank absorption fields is occasional periods of flooding and inadequate filtration of effluent. Because the substratum is very rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for roads because of occasional periods of flooding.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

162—Bluewing very stony loamy sand, 2 to 8 percent slopes. This very deep, excessively drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,200 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 110 to 120 days.

Typically, the surface layer is grayish brown very stony loamy sand about 5 inches thick. The underlying material to a depth of 60 inches or more is grayish brown, stratified extremely gravelly sand and very gravelly loamy coarse sand.

Included in this unit are about 10 percent Malpais soils on alluvial fans (range site 27-18) and 5 percent Toulon soils on high lake terraces and bars (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Bluewing soil is very rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding in July through September.

This unit is used for livestock grazing, wildlife habitat, and homesite development.

The potential plant community on this unit is mainly shadscale, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, spiny hopsage, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The main limitation for construction of dwellings is occasional periods of flooding. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

The main limitation for septic tank absorption fields is occasional periods of flooding and inadequate filtration of effluent. Because the substratum is very rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for roads because of occasional periods of flooding. Stones and cobbles on the surface make the construction of roads difficult.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

171—Cagle-Nosrac association. This map unit is on mountainsides. Slope is 15 to 50 percent. Elevation is 5,800 to 6,800 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 60 percent Cagle very stony clay loam, 15 to 50 percent slopes, and 25 percent Nosrac stony loam, 30 to 50 percent slopes. The Cagle soil is on south-facing side slopes, and the Nosrac soil is on north-facing side slopes.

Included in this unit are about 6 percent Hyloc soils on south- and west-facing side slopes (pinyon-juniper woodland), 4 percent Ister soils on north- and east-facing side slopes (range site 26-5), 2 percent Lunder soils on mountain terraces and benches (range site 26-23), and 3 percent Rock outcrop on steep side slopes and ridges. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Cagle soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown very stony clay loam about 2 inches thick. The upper 13 inches of the subsoil is brown gravelly clay, and the lower 15 inches is light yellowish brown very gravelly clay. Weathered andesite is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 40 inches. Where this soil adjoins the Carson City area, the surface layer is stony loam.

Permeability of this Cagle soil is slow. Available water capacity is low or very low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Nosrac soil is very deep and well drained. It formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown stony loam about 12 inches thick. The subsoil averages very gravelly clay loam that is pale brown and brown. It is about 33 inches thick. The substratum to a depth of 60 inches or more is pale brown very gravelly loam.

Permeability of this Nosrac soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for wood products, livestock grazing, and wildlife habitat.

The Cagle soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the very stony surface, and the high hazard of erosion. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment. Minimizing the risk of erosion is essential in harvesting trees.

The potential plant community on the Nosrac soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, currant, and antelope bitterbrush with an invasion of pinyon and juniper. The production of forage is limited by the moderate available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope. Because of the density of the pinyon and juniper trees in most areas, this Nosrac soil can also be managed as woodland. The reestablishment of the rangeland plant community in some areas may be difficult.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the Nosrac soil from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of slope and the content of highly expansive clay in the Cagle soil. Cutting and filling is minimized by building roads in the less sloping areas of the unit. Erosion is minimized and maintenance cost reduced by providing roads with surface drainage, a stable base, and a durable wearing surface.

This map unit is in capability subclass VIIs. The Nosrac soil is in range site 26-5.

181—Charlebois loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,900 to 5,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 8 inches thick. The subsoil is grayish brown and pale brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and pale brown loam that is 20 to 40 percent silica and lime nodules.

Included in this unit are about 7 percent East Fork soils in swales and near the downslope edges of the unit and 3 percent Veta soils in drainageways. Also included are small areas of wet Charlebois soils affected by lateral seepage from canals. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Charlebois soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated hay, pasture, and cultivated crops and for wildlife habitat.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. It is difficult to establish and maintain structures that can protect the unit from flash flooding.

This map unit is in capability subclasses IIc, irrigated, and VIc, nonirrigated.

182—Charlebois loam, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,900 to 5,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 8 inches thick. The subsoil is grayish brown and pale brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and pale brown loam that is 20 to 40 percent silica and lime nodules.

Included in this unit are about 7 percent East Fork soils in swales and near the downslope edges of the unit and 3 percent Veta soils in drainageways. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Charlebois soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated hay and pasture, cultivated crops, and wildlife habitat.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. For the efficient application and removal of irrigation water, leveling is needed in sloping areas.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

This map unit is in capability subclasses IIe, irrigated, and VIc, nonirrigated.

184—Charlebois gravelly loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,900 to 5,100 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

The surface layer is grayish brown gravelly loam about 8 inches thick. The subsoil is grayish brown and pale brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and pale brown loam that is 20 to 40 percent silica and lime nodules.

Included in this unit are about 5 percent East Fork soils in swales and near the downslope edges of the unit and 5 percent Veta soils in drainageways. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Charlebois soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for cultivated crops and wildlife habitat.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The gravelly texture of the surface layer limits harvesting of root crops, especially garlic.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

This map unit is in capability subclasses IIc, irrigated, and VIc, nonirrigated.

185—Charlebois sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans and flats. It formed in alluvium derived from mixed igneous rock. Elevation is 4,800 to 5,400 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 8 inches thick. The subsoil is brown clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is grayish brown and light brownish gray loam that is 20 to 40 percent silica and lime nodules. In some areas the surface layer is sand or loamy sand.

Included in this unit are about 5 percent East Fork soils in swales and 5 percent Patna soils in long, narrow areas throughout the unit. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Charlebois soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for cultivated crops and wildlife habitat.

This unit is well suited to irrigated cultivated crops. It is limited mainly by susceptibility to soil blowing when the surface is bare. Maintaining crop residue on or near the surface reduces runoff, reduces soil blowing, and helps to maintain soil tilth and organic matter content. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

This map unit is in capability subclasses IIc, irrigated, and VIc, nonirrigated.

191—Chill association. This map unit is on hills. Slope is 8 to 30 percent. Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Chill gravelly sandy loam that has slopes of 8 to 15 percent and is on the lower part of the slopes, and it is 40 percent Chill gravelly sandy loam that has slopes of 15 to 30 percent and is on the upper part of the slopes.

Included in this unit are about 6 percent Haybourne soils on the lower lying colluvial and alluvial fans (range site 26-16) and about 4 percent Veta soils in drainageways (range site 26-24). Also included are small areas of moderately deep and deep soils on side slopes. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Chill soil, 8 to 15 percent slopes, is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly sandy clay loam about 4 inches thick. Decomposed granite is at a depth

of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of this Chill soil is moderately slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Chill soil, 15 to 30 percent slopes, is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly sandy clay loam about 4 inches thick. Decomposed granite is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of this Chill soil is moderately slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Chill soil, 8 to 15 percent slopes, is mainly desert needlegrass, Thurber needlegrass, Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation, very low available water capacity, and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitation is very low available water capacity.

The potential plant community on the Chill soil, 15 to 30 percent slopes, is mainly desert needlegrass, Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation, very low available water capacity, restricted rooting depth, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitation is very low available water capacity.

Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

The Chill soil, 15 to 30 percent slopes is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Power equipment is needed to make cuts in the upper part of the bedrock. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

The Chill soil, 8 to 15 percent slopes, is in capability subclass VIIs and in range site 26-11. The Chill soil, 15 to 30 percent slopes, is in capability subclass VIIs and in range site 26-11.

201—Cleaver loamy fine sand, 2 to 8 percent slopes. This shallow, well drained soil is on old alluvial fans overlain by eolian sand. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray loamy fine sand about 6 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 25 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 10 percent Yerington soils on the leeward side of slope breaks and on hummocks (range site 27-9) and about 5 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Bailey greasewood, shadscale, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

The main limitation for construction of dwellings is the shallow depth to the hardpan. Heavy equipment is needed for excavation.

The main limitation for septic tank absorption fields is the shallow depth to the hardpan. Septic tank absorption fields should be designed to compensate for this limitation.

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts. Heavy equipment is needed for excavation.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-9.

202—Cleaver gravelly sandy loam, 2 to 4 precent slopes. This shallow, well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer averages gravelly sandy loam that is light brownish gray. It is about 3 inches thick. The subsoil averages gravelly clay loam that is brown. It is about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 15 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 6 percent Perazzo soils on skirts of alluvial fans (range site 27-18), 5 percent Malpais soils in drainageways and on inset alluvial fans (range site 27-18), and 4 percent Yerington soils on the leeward side of swales and draws (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The main limitation for construction of dwellings is the shallow depth to the hardpan. Heavy equipment is needed for excavation.

The main limitation for septic tank absorption fields is the shallow depth to the hardpan. Septic tank absorption fields should be designed to compensate for this limitation.

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

204—Cleaver stony sandy loam, 4 to 15 percent slopes. This shallow, well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray stony sandy loam about 3 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 5 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18) and 5 percent Yerington soils on the leeward side of draws (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bud sagebrush, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the very low average annual precipitation and very low available water capacity.

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts. Heavy equipment is needed for excavation.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

206—Cleaver very stony loam, 2 to 4 percent slopes. This shallow, well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray very stony loam about 3 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 6 percent Malpais soils in drainageways and on inset alluvial fans (range site 27-18) and 4 percent Yerington soils on the leeward side of draws (range site 27-9). Included areas make up about

10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The main limitation for construction of dwellings is the shallow depth to the hardpan. Heavy equipment is needed for excavation.

The main limitation for septic tank absorption fields is the shallow depth to the hardpan. Septic tank absorption fields should be designed to compensate for this limitation.

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

207—Cleaver very stony loam, 15 to 30 percent slopes. This shallow, well drained soil is on dissected sides of old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray very stony loam about 3 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 6 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18) and 4 percent Yerington soils on the leeward side of draws and on hummocks (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Cleaver soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagerush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of slope and the shallow depth to the hardpan. Roads should be designed to minimize cuts because of the limited depth to the underlying cemented pan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIe, nonirrigated, and in range site 27-18.

208—Cleaver association, sloping. This map unit is on old dissected alluvial fans. Slope is 2 to 15 percent. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Cleaver gravelly sandy loam that has slopes of 2 to 4 percent and 35 percent Cleaver stony sandy loam that has slopes of 4 to 15 percent. The Cleaver gravelly sandy loam is in areas that are not dissected, and the Cleaver stony sandy loam is on dissected side slopes.

Included in this unit are about about 10 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18) and 5 percent Yerington soils on the leeward side of dissected side slopes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Cleaver gravelly sandy loam is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Permeability of the Cleaver gravelly sandy loam is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is slow, and the

hazard of water erosion is slight. The hazard of soil blowing is slight.

The Cleaver stony sandy loam is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray stony sandy loam about 3 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Permeability of the Cleaver stony sandy loam is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Cleaver gravelly sandy loam is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The potential plant community on the Cleaver stony sandy loam is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

This unit is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

209—Cleaver association, moderately steep. This map unit is on old, highly dissected alluvial fans. Slope is 4 to 30 percent. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Cleaver very gravelly sandy loam that has slopes of 15 to 30 percent and 35 percent Cleaver gravelly sandy loam that has slopes of 4 to 15 percent. The Cleaver very gravelly sandy loam is on side slopes of dissected fans, and the Cleaver gravelly sandy loam is on the summits.

Included in this unit are about 10 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18) and 5 percent Yerington soils on the leeward side of the dissected side slopes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Cleaver very gravelly sandy loam is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Permeability of the Cleaver very gravelly sandy loam is slow to the impervious hardpan. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Cleaver gravelly sandy loam is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly clay loam about 8 inches thick. Below this is a silica- and lime-cemented hardpan about 35 inches thick. The upper 10 inches of the hardpan is indurated, and the lower part is weakly and strongly cemented. Depth to the hardpan ranges from 10 to 20 inches.

Permeability of the Cleaver gravelly sandy loam is slow to the impervious hardpan. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Cleaver very gravelly sandy loam is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The potential plant community on the Cleaver gravelly sandy loam is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bud sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland

seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The Cleaver very gravelly sandy loam is limited for roads because of slope and the shallow depth to the hardpan. The Cleaver gravelly sandy loam is limited for roads because of the shallow depth to the hardpan. Roads should be designed to minimize cuts because of the limited depth to the hardpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Cleaver very gravelly sandy loam is in capability subclass VIIe, nonirrigated, and in range site 27-18. The Cleaver gravelly sandy loam is in capability subclass VIIs, nonirrigated, and in range site 27-18.

221—Dalzell sand, 2 to 4 percent slopes. This moderately deep, somewhat poorly drained soil is on lake terraces. It formed in lacustrine deposits derived from various kinds of rock. Elevation is 4,500 to 4,700 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown sand about 3 inches thick. The subsoil is grayish brown and light gray silty clay loam about 18 inches thick. The next layer is a strongly silica- and lime-cemented hardpan about 7 inches thick. The substratum to a depth of 60 inches or more is light gray and light olive brown sandy loam and loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Included in this unit are about 5 percent Veta soils on inset alluvial fans (range site 26-24) and 5 percent Dia soils in old stream channels (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dalzell soil is moderately slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. A seasonal high water table is at a depth of 42 to 72 inches in March through June. This soil is slightly salt- and alkali-affected above the hardpan.

This unit is used for irrigated cultivated crops, wildlife habitat, and livestock grazing.

The potential plant community on this unit is mainly black greasewood, basin big sagebrush, and basin wildrye. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitations are the sandy texture of the surface layer and slightly saline and alkali condition of the soil. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

This unit is suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Because of the limited depth to the underlying hardpan, cuts required for leveling should be less than 8 inches deep. The content of salts and alkali can be reduced by using soil amendments such as gypsum and by leaching. Irrigation water must be carefully applied to avoid raising the water table and increasing the concentration of salts and alkali in the soil. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion. Ripping and shattering the hardpan increases the effective rooting depth and improves internal drainage.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-12.

223—Dalzell clay loam, 0 to 2 percent slopes. This moderately deep, somewhat poorly drained soil is on lake terraces. It formed in lacustrine deposits derived from various kinds of rock. Elevation is 4,500 to 4,700 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown clay loam about 3 inches thick. The subsoil is grayish brown and light gray silty clay loam about 18 inches thick. The next layer is a strongly silica- and lime-cemented hardpan about 7 inches thick. The substratum to a depth of 60 inches or more is light gray and light olive brown sandy loam and loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Included in this unit are about 5 percent Veta soils on toe slopes of fans (range site 26-24) and 5 percent Dia soils in old stream channels (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dalzell soil is moderately slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. A seasonal high water table is at a depth of 42 to 72 inches in March through June. This soil is slightly salt- and alkali-affected above the hardpan.

This unit is used for irrigated cultivated crops, livestock grazing, and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, basin big sagebrush, and basin

wildrye. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the slightly saline and alkali condition of the soil.

This unit is suited to irrigated hay, pasture, and cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The content of salts and alkali can be reduced by using soil amendments such as gypsum and by leaching. Irrigation water must be carefully applied to avoid raising the water table and increasing the concentration of salts and alkali in the soil. Ripping and shattering the hardpan increases the effective rooting depth and improves internal drainage.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 26-12.

231—Delp-Lox association. This map unit is on stabilized dunes and old alluvial fans. Slope is 2 to 15 percent. Elevation is 4,550 to 4,700 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Delp loamy sand that has slopes of 2 to 15 percent and 30 percent Lox gravelly fine sandy loam that has slopes of 2 to 4 percent. The Delp soil is on stabilized sand dunes, and the Lox soil is on old alluvial fans between the dunes.

Included in this unit are about 6 percent Lahonton soils on old lake plains (range site 27-25) and 4 percent Malpais soils in drainageways that transect the unit (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Delp soil is very deep and well drained. It formed in eolian sand derived from granitic rock. Typically, the surface layer is light gray and light brownish gray loamy sand about 5 inches thick. The subsoil is light gray and pale brown, stratified loamy sand and sandy loam about 14 inches thick. The substratum to a depth of 60 inches or more is light gray and light brownish gray, stratified loamy coarse sand and loamy fine sand.

Permeability of the Delp soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Lox soil is very deep and well drained. It formed in alluvium derived dominantly from basic igneous rock and granitic rock. Typically, the surface layer averages gravelly fine sandy loam that is light brownish gray and light gray. It is about 3 inches thick. The subsoil is pale brown clay loam about 5 inches thick. The substratum to a depth of 60 inches or more is light brownish gray very gravelly sandy loam.

Permeability of the Lox soil is slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly or moderately salt- and alkali-affected in the surface layer and subsoil.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Delp soil is mainly Indian ricegrass, needleandthread, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly Indian ricegrass, dalea, black greasewood, and shadscale. The potential plant community on the Lox soil is mainly black greasewood, Bailey greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail.

The production of forage on this unit is limited by the low average annual precipitation. The suitability of the unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. When the Delp soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing. Roads can easily be constructed and maintained on the Lox soil.

This map unit is in capability subclass VIIs, nonirrigated. The Delp soil is in range site 27-16, and the Lox soil is in range site 27-24.

232—Delp-Orizaba complex, 0 to 15 percent slopes. This map unit is on stabilized dunes and lake plains. Elevation is 4,450 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Delp fine sand that has slopes of 0 to 15 percent and 30 percent Orizaba loam, drained, that has slopes of 0 to 2 percent. The Delp soil is on stabilized dunes, and the Orizaba soil is in interdune areas comprising old lake plains.

Included in this unit are about 5 percent Wabuska soils on old lake plains (range site 27-6) and 5 percent Isolde soils on back slopes of dunes (range site 27-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Delp soil is very deep and well drained. It formed in wind-deposited arkosic sand derived from granitic rock. Typically, the surface layer is light gray fine sand about 5 inches thick. The subsoil is pale brown, stratified sandy loam and loamy sand about 14 inches thick. The substratum to a depth of 60 inches or more is stratified sand and loamy fine sand.

Permeability of this Delp soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Orizaba soil is very deep and somewhat poorly drained. It formed in alluvial and lacustrine deposits derived dominantly from various kinds of rock. Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 60 inches or more is mottled, very pale brown silty clay loam that has strata of loam and silt loam.

Permeability of this Orizaba soil is moderately slow. Available water capacity is high. A seasonal high water table is at a depth of 72 inches or more in most months. Runoff is very slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. The soil is slightly salt- and alkali-affected in the surface layer, and it is slightly or moderately salt- and alkali-affected below.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Delp soil is mainly Indian ricegrass, needleandthread, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly Bailey greasewood, black greasewood, shadscale, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the fine sandy texture of the surface layer.

The potential plant community on the Orizaba soil is mainly black greasewood, Bailey greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, black greasewood, shadscale, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the slightly saline and alkali condition of the soil.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

When the Delp soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing. The Orizaba soil is limited for roads because of low load-bearing capacity. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated. The Delp soil is in range site 26-16, and the Orizaba soil is in range site 27-24.

233—Delp sand, 2 to 15 percent slopes. This very deep, well drained soil is on stabilized dunes. It formed in eolian sand that has a component of silt and clay that is high in content of sodium and calcium and is derived from granitic rock. Elevation is 4,550 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray sand about 5 inches thick. The subsoil is pale brown, stratified sandy loam and loamy sand about 14 inches thick. The substratum to a depth of 60 inches or more is stratified sand and loamy fine sand.

Included in this unit are about 10 percent Lox soils on alluvial fans between dunes (range site 27-24) and 5 percent Orizaba soils in small depressional areas (range site 26-12). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Delp soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, needleandthread, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly black greasewood, Indian ricegrass, littleleaf horsebrush, and hairy horsebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-16.

241—Devada-Rock outcrop complex, 4 to 15 percent slopes. This map unit is on rolling hills. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 70 percent Devada very cobbly loam that has slopes of 4 to 15 percent and 15 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 7 percent Old Camp soils on the upper part of north-facing, concave side slopes (range site 26-22), 4 percent Cagle soils on north- and east-facing side slopes (pinyon woodland), and 4 percent Oppio soils on south- and west-facing side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Devada soil is shallow and well drained. It formed in residuum derived dominantly from rhyolitic tuff and andesite. Typically, the surface layer is brown very cobbly loam about 4 inches thick. The subsoil is brown clay about 9 inches thick. Andesite is at a depth of 13 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of this Devada soil is slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of andesite or rhyolitic tuff.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used as watershed.

The potential plant community on the Devada soil is mainly low sagebrush, Thurber needlegrass, and Canby bluegrass. The present vegetation in most areas is mainly low sagebrush, Sandberg bluegrass, and antelope bitterbrush. Juniper has invaded. The production of forage is limited by the low average annual precipitation, very low available water capacity, and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Devada soil is limited for roads because of the shallow depth to bedrock and low load-bearing capacity. Roads should be designed to minimize cuts because of the limited depth to bedrock. Roads should be provided with a stable base and an adequate wearing surface. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated. The Devada soil is in range site 26-23.

242—Devada-Rock outcrop association. This map unit is on hillsides. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 70 percent Devada very cobbly loam that has slopes of 15 to 50 percent and 15 percent Rock outcrop.

Included in this unit are about 9 percent Old Camp soils on the upper part of north-facing, concave side slopes (range site 26-22) and 6 percent Oppio soils on south- and west-facing piedmont slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Devada soil is shallow and well drained. It formed in residuum derived dominantly from andesite and rhyolitic tuff. Typically, the surface layer is grayish brown very cobbly loam about 5 inches thick. The subsoil averages gravelly clay that is brown. It is about 13 inches thick. Andesite is at a depth of 18 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of this Devada soil is slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of andesite and rhyolitic tuff.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used as watershed.

The potential plant community on the Devada soil is mainly low sagebrush, Thurber needlegrass, and Canby bluegrass. The present vegetation in most areas is mainly low sagebrush, Sandberg bluegrass, and antelope bitterbrush. The production of forage is limited by the low average annual precipitation, very low available water capacity, and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope. Livestock grazing should be managed to protect the soil from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the soil to produce plants suitable for grazing.

The Devada soil is limited for roads because of slope, shallow depth to bedrock, and low load-bearing capacity. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and an adequate wearing surface. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Devada soil is in capability subclass VIIe, nonirrigated, and in range site 26-23.

251—Dia loam. This very deep, somewhat poorly drained soil is on alluvial flats and stream terraces. It formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual

precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown loam about 20 inches thick. The underlying material to a depth of 60 inches or more averages sand that is pale brown and light brownish gray.

Included in this unit are about 6 percent Dithod soils that are medium textured throughout and are intermingled throughout the unit (range site 27-2), 5 percent East Fork soils that are moderately fine textured throughout (range site 27-2), and 4 percent Sagouspe soils in long, narrow, sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dia soil is moderate to a depth of 20 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table in summer and fall. The suitability of this unit for rangeland seeding is fair. The main limitation is wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Because of the limited depth to sandy material, cuts required for leveling should be less than 12 inches deep.

The main limitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table, moderate permeability in the upper part of the soil, and inadequate filtration of effluent in the lower part. Drainage or special design is needed because of the high water table. Absorption lines should be placed below the moderately permeable layer. Increasing the size of the absorption area helps to compensate for the restricted permeability. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for road construction because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

252—Dia clay loam. This very deep, somewhat poorly drained soil is on alluvial flats and stream terraces. It formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown clay loam about 9 inches thick. The upper 15 inches of the underlying material is brown sandy loam stratified with silt loam and loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Included in this unit are about 6 percent Dithod soils on low terraces (range site 27-2), 5 percent East Fork soils on low terraces (range site 27-2), and 4 percent Sagouspe soils in long, narrow, sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dia soil is moderately slow to a depth of 24 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table in summer and fall. The suitability of this unit for rangeland seeding is fair. The main limitation is

wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Because of the limited depth to sandy material, cuts required for leveling should be less than 12 inches deep. Harvesting of root or tuber crops, such as garlic, onions, and potatoes, is hampered by the cloddiness of the clay loam surface layer. Special equipment is needed to overcome this problem.

The main limitation for construction of dwellings is rare periods of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table, moderately slow permeability in the upper part of the soil, and inadequate filtration of effluent in the lower part. Drainage or special design is needed because of the high water table. Absorption lines should be placed below the moderately slowly permeable layer. Increasing the size of the absorption area helps to compensate for the restricted permeability. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for road construction because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

253—Dia clay loam, wet. This very deep, somewhat poorly drained soil is on flood plains and low stream terraces in shallow depressional areas and abandoned channels. The drainage has been altered as a result of seepage from canals and irrigation in higher lying areas. The soil formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown clay loam about 9 inches thick. The upper 10 inches of the underlying material is brown, stratified sandy loam to silty clay loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Included in this unit are about 10 percent Dithod soils that are wet and are on low terraces (range site 27-4) and 5 percent Fernley soils in sand-filled stream channels (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dia soil is moderately slow to a depth of 19 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1 to 2 feet from March through June. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and meadow hay and pasture.

The potential plant community on this unit is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly rushes, sedges, and meadow barley. The production of forage is limited by the lowering of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is poor. The main limitation is wetness of the soil in spring and early in summer. Plants that are tolerant of wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay and pasture. Wetness limits the choice of plants and the period of cutting or grazing and increases the risk of winterkill. Irrigation water can be applied by the border and corrugation methods. Leveling helps to insure the uniform application of water.

This unit is limited for roads because of a severe hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IVw, irrigated, and Vw, nonirrigated. It is in range site 27-4.

254—Dia-Dithod complex. This map unit is on alluvial flats and low stream terraces. The drainage has been altered as a result of seepage from canals and irrigation in higher lying areas. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 35 percent Dia clay loam, wet; 30 percent Dithod clay loam, wet; and 20 percent Dithod loam, saline-alkali. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 9 percent Fernley soils in filled stream channels and sloughs (range site 27-4) and 6 percent East Fork soils that are wet and are

intermingled throughout the unit (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Dia clay loam, wet, is very deep and somewhat poorly drained. It formed in loamy alluvium derived dominantly from basic igneous and granitic rocks. Typically, the surface layer is grayish brown clay loam about 9 inches thick. The upper 10 inches of the underlying material is brown sandy loam stratified with silt loam and loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Permeability of the Dia soil is moderately slow to a depth of 19 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1 to 2 feet from March through June. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Dithod clay loam, wet, is very deep and somewhat poorly drained. It formed in loamy alluvium derived dominantly from basic igneous and granitic rocks. Typically, the surface layer is grayish brown clay loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray and pale brown, mottled, stratified loam to loamy fine sand.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Dithod loam, saline-alkali, is very deep and somewhat poorly drained. It formed in loamy alluvium derived dominantly from basic igneous and granitic rocks. Typically, the surface layer is grayish brown loam about 11 inches thick. The underlying material to a depth of 60 inches is stratified, light brownish gray and pale brown, mottled silt loam to loamy fine sand.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately or strongly salt- and alkali-affected in the surface layer. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

Most areas of this unit are used for livestock grazing. A few areas are used for irrigated pasture. The unit can be used for irrigated cultivated crops if the toxic salts in the Dithod loam, saline-alkali, are leached and drainage is provided.

The potential plant community on the Dia clay loam, wet, and Dithod clay loam, wet, is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly rushes, sedges, and meadow barley. The production of forage is limited by the drop in the level of the water table late in summer and in fall. The suitability of these soils for rangeland seeding is poor. The main limitation is wetness of the soil in spring and early in summer.

The potential plant community on the Dithod loam, saline-alkali, is mainly alkali sacaton, inland saltgrass, basin wildrye, and black greasewood. The present vegetation in most areas is mainly inland saltgrass, black greasewood, and rubber rabbitbrush. The production of forage is limited by the saline and alkali condition of the Dithod soil and the drop in the level of the water table late in summer and in fall. The suitability of these soils for rangeland seeding is very poor. The main limitation is the saline and alkali condition of the surface layer of the Dithod soil.

Seeding of large areas of the more favorable Dia clay loam, wet, and Dithod clay loam, wet, in this unit is difficult because of the pattern in which they occur with areas of the less favorable Dithod loam, saline-alkali. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soils have drained sufficiently and are firm enough to withstand trampling by livestock.

If this unit is used for hay and pasture, the main limitations are the high water table and the saline and alkali condition of the Dithod loam, saline-alkali. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. It is difficult to provide deep drainage of these soils because of their low position and the lack of grade to an outlet. Irrigation water can be applied by the border and corrugation methods. Leveling helps to insure the uniform application of water.

This unit is limited for roads because of a severe hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IVw, irrigated, and Vw, nonirrigated. The Dia clay loam, wet, is in range site 27-4. The Dithod clay loam, wet, is in range site 27-4. The Dithod loam, saline-alkali, is in range site 27-5.

255—Dia-Dithod complex, ponded. This map unit is on old flood plains and alluvial flats. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Dia loam, ponded, and 40 percent Dithod clay loam, ponded. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Fernley soils that are in sand-filled stream channels and are scattered throughout the unit. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Dia loam is very deep and somewhat poorly drained. It formed in alluvial and lacustrine material derived from various kinds of rock. Typically, the surface layer is grayish brown loam about 19 inches thick. The upper 5 inches of the underlying material is brown light sandy loam stratified with silt loam and silty clay loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Permeability of the Dia soil is moderately slow to a depth of 24 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2 to 3 feet from May through July. Runoff is ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The floodwater on this soil is artificially controlled to pond it on the surface throughout the year.

The Dithod soil is very deep and somewhat poorly drained. It formed in alluvial and lacustrine material derived from various kinds of rock. Typically, the surface layer is grayish brown clay loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled silt loam, and the lower part to a depth of 60 inches or more is grayish brown to pale brown silt loam to loamy fine sand.

Permeability of the Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a high water table that is at a depth of 2 to 3 feet throughout the year. Runoff is ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The floodwater on this soil is artificially controlled to pond it on the surface throughout the year.

This unit is used for wetland wildlife habitat.

From March to November, food and cover for waterfowl are produced by ponding water on the unit using a system of dikes and levees. During the rest of the year the water table is lowered to prepare seedbeds for planting millet and alkali bulrush, which provide food for wildlife.

This unit is limited for roads because of a hazard of frost heaving and susceptibility to ponding. Roads and streets should be located above the expected flood level. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclass Vw, nonirrigated. It is in range site 27-1.

256—Dia-Sagouspe complex. This map unit is on alluvial flats and stream terraces. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Dia loam, 30 percent Sagouspe sandy loam, and 20 percent Sagouspe loamy sand. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 6 percent Dithod soils (range site 27-2) and 4 percent East Fork soils (range site 27-2) intermingled throughout the unit. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Dia soil is very deep and somewhat poorly drained. It formed in alluvial and lacustrine material derived from various kinds of rock. Typically, the surface layer is grayish brown loam about 19 inches thick. The upper 5 inches of the underlying material is brown sandy loam stratified with silt loam and loam, and the lower part to a depth of 60 inches or more is brown and light brownish gray sand.

Permeability of the Dia soil is moderately slow in the upper part and rapid in the lower part. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Sagouspe sandy loam is very deep and somewhat poorly drained. It formed in sandy alluvium derived dominantly from granitic rock. Typically, the surface layer is light gray sandy loam about 16 inches thick. The underlying material to a depth of 60 inches or more is brownish gray sand stratified with loamy sand and silt loam.

Permeability of the Sagouspe sandy loam is moderately rapid. Available water capacity is low. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 3.5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Sagouspe loamy sand is very deep and somewhat poorly drained. It formed in sandy alluvium derived dominantly from granitic rock. Typically, the surface layer is light gray loamy sand about 16 inches thick. The underlying material to a depth of 60 inches or more is brownish gray sand stratified with loamy sand and silt loam.

Permeability of the Sagouspe loamy sand is rapid. Available water capacity is low. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 3.5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated pasture and livestock grazing.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and western wheatgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

If this unit is used for hay and pasture, the main limitations are the seasonal high water table and the hazard of soil blowing on the Sagouspe loamy sand. Irrigation water can be applied by the border, corrugation, and sprinkler methods. Leveling helps to insure the uniform application of water. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. It is difficult to provide deep drainage of the soils in this unit because of their low position and the lack of grade to an outlet.

The Dia soil is limited for roads because of a severe hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. If surface drainage and a stable base are provided, damage from frost heaving is minimized on the Sagouspe soils.

This map unit is in capability subclasses IIIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

261—Dithod loam. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled silt loam, and the lower part to a depth of 60 inches or more is stratified, grayish brown to pale brown, mottled silt loam to sandy clay loam.

Included in this unit are about 8 percent Sagouspe soils in meandering sand-filled stream channels (range site 27-2), 4 percent Dia soils that have a sandy substratum (range site 27-2), and 3 percent East Fork soils that are moderately fine textured to a depth of 60 inches or more (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from December through August. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and hay. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly creeping wildrye, basin wildrye, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

262—Dithod loam, clay substratum. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown loam about 11 inches thick. The upper 29 inches of the underlying material is stratified loam to silt loam, and the lower part to a depth of 60 inches or more is clay loam or silty clay loam. In some areas the surface layer is silt loam or clay loam.

Included in this unit are about 6 percent Sagouspe soils in meandering sand-filled stream channels (range site 27-2), 3 percent Dia soils that have a sandy substratum (range 27-2), and 6 percent East Fork soils that are moderately fine textured to a depth of 40 inches or more (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and hay and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly creeping wildrye, Nevada bluegrass, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Special design is needed for septic tank absorption fields to avoid contaminating the ground water or raising the level of the water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

263—Dithod clay loam, wet. This very deep, somewhat poorly drained soil is on low stream terraces and alluvial flats. The drainage has been altered as a result of seepage from canals and excessive irrigation in higher lying areas. The soil formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown clay loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, mottled, stratified silt loam to loamy fine sand.

Included in this unit are about 10 percent Sagouspe soils that are wet and are in meandering sand-filled stream channels (range site 27-4) and 5 percent Dia soils that are wet and have a sandy substratum (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated pasture and livestock grazing. It is also used for irrigated cultivated crops and homesite development.

The potential plant community on this unit is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly creeping

wildrye, sedges, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is fair. The main limitation is wetness of the soil in spring. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is poorly suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high intensity of storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IVw, irrigated, and VIw, nonirrigated. It is in range site 27-4.

264—Dithod loam, saline-alkali. This very deep, somewhat poorly drained soil is on low stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratified, mottled silt loam to loamy fine sand.

Included in this unit are about 5 percent East Fork soils that are saline and alkali and are moderately fine textured to a depth of 40 inches or more (range site 27-5), 5 percent Dia soils that are wet and have a sandy substratum (range site 27-4), and 5 percent Sagouspe soils that are saline and alkali and are in meandering sand-filled stream channels (range site 27-5). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly salt- and alkali-affected to a depth of 11 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass, black greasewood, and basin wildrye. The present vegetation in most areas is mainly inland saltgrass, black greasewood, rubber rabbitbrush, and alkali sacaton. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main limitations are the content of salts and alkali in the surface layer and wetness of the soil. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is poorly suited to hay and pasture. The main limitations are the high content of salts and alkali in the surface layer and the high water table. Excessive water on the surface can be removed by surface drains. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Irrigation water can be applied by the border and sprinkler methods. Leveling helps to insure the uniform application of water.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the high water table and the moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses VIw, irrigated, and VIIw, nonirrigated. It is in range site 27-5.

265—Dithod clay loam. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is grayish brown clay loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled silt loam, and the lower part to a depth of 60 inches or more is stratified, grayish brown to pale brown loam to sandy loam.

Included in this unit are about 6 percent Sagouspe soils in meandering sand-filled stream channels (range site 27-2), 5 percent East Fork soils that are moderately fine textured to a depth of 40 inches or more (range site 27-2), and 4 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from December through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly creeping wildrye, basin wildrye, and basin big sagebrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to this unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Harvesting of root or tuber crops, such as garlic, onions, and potatoes, is hampered by the cloddiness of the clay loam surface layer. Special equipment is needed to overcome this problem.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Special design is needed for septic tank absorption fields to avoid contaminating the ground water or raising the level of the water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

268—Dithod clay loam, wet, saline-alkali. This very deep, somewhat poorly drained soil is on low stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown clay loam about 11 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, mottled, stratified silt loam to loamy fine sand.

Included in this unit are about 8 percent Sagouspe soils in sand-filled stream channels (range site 27-2), 4 percent Dia soils that are sandy below a depth of about 24 inches (range site 27-2), and 3 percent East Fork soils that are moderately fine textured to a depth of 40 inches or more (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly salt- and alkali-affected to a depth of 11 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass, basin wildrye, and black greasewood. The present vegetation in most areas is mainly inland saltgrass, black greasewood, rubber rabbitbrush, and alkali sacaton. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main

limitations are the content of salts and alkali in the surface layer and wetness of the soil in spring.

This unit is poorly suited to hay and pasture. The main limitations are the high content of salts and alkali in the surface layer and the high water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Irrigation water can be applied by the border and sprinkler methods. Leveling helps to insure the uniform application of water.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the high water table and the moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the potential for frost action. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses VIw, irrigated, and VIIw, nonirrigated. It is in range site 27-5.

269—Dithod-Sagouspe-Dia complex. This map unit is on stream terraces and alluvial flats. Slopes are 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 30 percent Dithod loam, 30 percent Sagouspe sandy loam, and 30 percent Dia loam. The Dithod and Dia soils are in the higher lying areas of stream terraces and alluvial flats, and the Sagouspe soil is in long, narrow, winding, sand-filled channels of stream terraces and alluvial flats. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent East Fork soils in sediment-filled old oxbows (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Dithod soil is very deep and somewhat poorly drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown loam about 11 inches thick. The upper 9 inches of the underlying material is light brownish gray, mottled silt loam, and the lower part to a depth of 60 inches or more is stratified, grayish brown to pale brown, mottled loam to sandy loam.

Permeability of the Dithod soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from December through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Sagouspe soil is very deep and somewhat poorly drained. It formed in sandy alluvium derived from various kinds of rock. Typically, the surface layer is light gray to pale brown sandy loam about 16 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray loamy sand with fine strata of loam and sandy loam.

Permeability of the Sagouspe soil is rapid. Available water capacity is low. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.0 to 3.5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Dia soil is very deep and somewhat poorly drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown loam about 5 inches thick. The upper 24 inches of the underlying material is stratified, grayish brown and light brownish gray sandy loam to loam, and the lower part to a depth of 60 inches or more is pale brown sand.

Permeability of the Dia soil is moderately slow to a depth of about 29 inches and rapid below this depth. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.0 to 5.0 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated crops. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush. The present vegetation in most areas is mainly basin big sagebrush, creeping wildrye, and Nevada bluegrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

The Dithod and Dia soils are well suited to irrigated crops. The Dia soil is limited mainly by the moderate available water capacity. Deep-rooted crops are suited to

areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to these soils. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The Sagouspe soil is suited to irrigated crops. It is limited mainly by the low available water capacity. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table, the moderately slow permeability of the Dithod and Dia soils, and the rapid permeability of the Sagouspe soil. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability of the Dithod and Dia soils. Because the Sagouspe soil is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for road location because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. Unless surface drainage is provided on the Sagouspe soil, excess water accumulates and roads are damaged by frost heaving.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

271—East Fork loam. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brownish gray, mottled loam to silty clay loam.

Included in this unit are about 7 percent Dithod soils that are medium textured (range site 27-2), 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2), and 3 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this East Fork soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from December through May. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and creeping wildrye. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

272—East Fork loam, occasionally flooded. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived

from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brownish gray, mottled sandy clay loam to clay loam.

Included in this unit are about 7 percent Fallon soils on low stream terraces (range site 27-2), 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2), and 3 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this East Fork soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from May through June. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, brief periods of flooding in April through June.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, rubber rabbitbrush, and creeping wildrye. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasonal high water table and occasional periods of flooding. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The risk of flooding can be reduced by the use of dikes and levees. Furrow, border, corrugation, and sprinkler irrigation systems are suited to this unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is occasional periods of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the hazard of flooding, the seasonal high water table, and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the hazards of flooding and frost heaving and low soil strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

274—East Fork clay loam. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown clay loam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brownish gray, mottled sand to silty clay.

Included in this unit are about 7 percent Dithod soils that are medium textured (range site 27-2), 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2), and 3 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this East Fork soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from December through May. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, creeping wildrye, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed

until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Harvesting of root or tuber crops, such as garlic, onions, and potatoes, is hampered by the cloddiness of the clay loam surface layer. Special equipment is needed to overcome this problem. Furrow, border, corrugation, and sprinkler irrigation systems are suited to this unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings on this unit is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for road location because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

275—East Fork clay loam, saline-alkali. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown clay loam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brownish gray, mottled loam to silty clay loam.

Included in this unit are about 6 percent Dithod soils that are saline and alkali and are medium textured (range site 27-5), 5 percent Sagouspe soils that are saline and alkali and are in sand-filled channels (range site 27-5), and 4 percent Dia soils that are wet and have a sandy substratum (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this East Fork soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from April through July. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly salt- and alkali-affected to a depth of 14 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for livestock grazing and homesite development. The unit can be used for irrigated cultivated crops, hay, and pasture if the soil is reclaimed.

The potential plant community on this unit is mainly inland saltgrass, alkali sacaton, creeping wildrye, and black greasewood. The present vegetation in most areas is mainly black greasewood, inland saltgrass, and rubber rabbitbrush. The production of forage is limited by the content of salts and alkali in the surface layer, the drop in the level of the water table late in summer, and the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the content of salts and alkali in the surface layer. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIw, irrigated, and VIIw, nonirrigated. It is in range site 27-5.

276—East Fork clay loam, clay substratum. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown clay loam about 8 inches thick. The upper 32 inches of the underlying material is light brownish gray, mottled clay loam, and the lower part to a depth of 60 inches or more is light brownish gray and gray, mottled and gleyed silty clay and clay.

Included in this unit are about 6 percent Dithod soils that are medium textured (range site 27-2), 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2), and 4 percent Dia soils that have a sandy substratum (range site 27-2). Included areas make up

about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this East Fork soil is moderately slow to a depth of 40 inches and slow below this depth. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly creeping wildrye, basin big sagebrush, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

277—East Fork gravelly clay loam. This very deep, somewhat poorly drained soil is on stream terraces and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown gravelly clay loam about 14 inches thick. The underlying material to a depth of 60 inches or more is stratified, gray and light brownish gray, mottled loam to clay loam.

Included in this unit are about 10 percent Dithod soils that have a sandy substratum (range site 27-2) and 5 percent Charlebois soils on stream terraces (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this East Fork soil is moderately slow Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from December through May. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pastue. It is also used for livestock grazing and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, creeping wildrye, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness in summer and fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Harvesting of root or tuber crops, such as garlic, onions, and potatoes, is hampered by the cloddiness of the gravelly clay loam surface layer. Special equipment is needed to overcome this problem. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the hazard of frost heaving and low soil strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

291—Fallon sand. This very deep, somewhat poorly drained soil is on stream terraces. It formed in alluvium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown sand about 10 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratified loam, silt loam, fine sandy loam, loamy sand, and sand and is mottled in the lower part.

Included in this unit are about 5 percent Isolde soils on stabilized dunes (range site 27-23), 3 percent Dia soils in old filled oxbows (range site 27-2), and 2 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops, hay, and pasture. It is also used for livestock grazing.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly rubber rabbitbrush, inland saltgrass, and silver buffaloberry. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is very poor. The main limitation is the sandy texture of the surface layer. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the sandy texture of the surface layer. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of the hazard of frost heaving. Roads should be provided with a stable base and an adequate wearing surface. When the sandy surface layer is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

292—Fallon fine sandy loam. This very deep, somewhat poorly drained soil is on stream terraces. It formed in alluvium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown fine sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray and light gray, stratified loam, silt loam, fine sandy loam, loamy sand, and sand and is mottled in the lower part.

Included in this unit are about 7 percent Dithod soils that are saline and alkali and are on stream terraces (range site 27-5) and 3 percent Sagouspe soils that are saline and alkali and are in old oxbows and in sand-filled stream channels (range site 27-5). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the surface layer. It is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing. It can be used for irrigated pasture and cultivated crops if it is protected from flooding.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly rubber rabbitbrush, inland saltgrass, silver buffaloberry, and basin big sagebrush. The production of

forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. Irrigation water must be carefully applied to avoid raising the water table and increasing the concentration of salts and alkali in the soil.

This unit is limited for roads because of the hazard of frost heaving. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIw, irrigated, and VIIw, nonirrigated. It is in range site 27-2.

293—Fallon fine sandy loam, frequently flooded. This very deep, somewhat poorly drained soil is on long, narrow stream terraces adjacent to the Walker and Carson Rivers. It formed in alluvium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,200 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown fine sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratified loam, silt loam, fine sandy loam, loamy sand, and sand and is mottled in the lower part.

Included in this unit are about 6 percent Sagouspe soils in sand-filled stream channels (range site 27-2) and about 4 percent Dithod soils in filled oxbows and stream terraces (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to frequent, brief periods of flooding in March through November.

This unit is used for livestock grazing. It can be used for irrigated pasture and cultivated crops if it is protected from flooding.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly basin big sagebrush, inland saltgrass, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is fair. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of the hazard of frost heaving and frequent periods of flooding. Roads should be provided with a stable base and an adequate wearing surface. Roads and streets should be located above the expected flood level.

This map unit is in capability subclasses IIIw, irrigated, and VIw, nonirrigated. It is in range site 27-2.

294—Fallon fine sandy loam, saline-alkali. This very deep, somewhat poorly drained soil is on stream terraces. It formed in alluvium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown fine sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratified loam to sand and is mottled in the lower part.

Included in this unit are about 5 percent Wabuska soils that are on older terraces (range site 27-6) and 5 percent Orizaba soils on stream terraces (range site 26-12). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected in the surface layer, and it is nonsaline and nonalkali or slightly salt- and alkali-affected below. The soil is subject to flooding during prolonged high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for pasture and livestock grazing. The unit can be used for irrigated cultivated crops if the content of salts and alkali is reduced.

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass, creeping wildrye, and black greasewood. The present vegetation in most areas is mainly inland saltgrass, rubber rabbitbrush, black greasewood, and iodinebush. The production of forage is limited by the content of salts and alkali in the surface layer, the low average annual precipitation, and the drop

in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is very poor. The main limitation is the content of salts and alkali in the surface layer. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay and pasture. The concentration of salts and alkali in the surface layer limits the production of plants suitable for hay and pasture. Leaching the salts from the surface layer is limited by the high water table. Drainage and irrigation water management reduce the concentration of salts. Salt-tolerant species are most suitable for planting.

This unit is limited for roads because of the hazard of frost heaving. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIIw, irrigated, and VIIw, nonirrigated. It is in range site 27-5.

295—Fallon sandy loam, ponded. This very deep, somewhat poorly drained soil is on stream terraces. It formed in alluvium derived dominantly from andesite, basalt, and granite. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, stratified loam to sand and is mottled in the lower part.

Included in this unit are about 10 percent Dia soils that are ponded and are in sand-filled stream channels.

Permeability of this Fallon soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.5 to 5.0 feet from April through September. Runoff is ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The floodwater on this soil is artificially controlled to pond it on the surface from March to November.

This unit is used for wetland wildlife habitat.

From March to November, food and cover for waterfowl are produced on this unit by ponding water on it using a system of dikes and levees. During the rest of the year the water table is lowered to prepare seedbeds for planting millet and alkali bulrush, which provide food for wildlife.

This unit is limited for roads because of the hazards of frost heaving and flooding. Local roads and streets may require a special base to avoid frost heave damage. Roads and streets should be located above the expected flood level.

This map unit is in capability subclass Vw, nonirrigated. It is in range site 27-1.

301—Fernley loamy sand. This very deep, poorly drained soil is in sand-filled channels and basins on low stream terraces. It formed in sandy alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, mottled sand.

Included in this unit are about 5 percent Dia soils on low terraces (range site 27-2) and 5 percent Dithod soils on stream terraces (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fernley soil is very rapid. Available water capacity is low. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2 to 4 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing. It can be used for irrigated hay, pasture, and cultivated crops if water is made available and the water table is lowered.

The potential plant community on this unit is mainly tufted hairgrass, Nevada bluegrass, rushes, and sedges. The present vegetation in most areas is mainly rubber rabbitbrush, willows, and sedges. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table in fall. The suitability of this soil for rangeland seeding is very poor. The main limitations are the sandy texture of the surface layer and the low average annual precipitation.

This unit is limited for roads because of the seasonal high water table, the hazard of flooding during high-intensity storms of long duration, and a moderate hazard of frost heaving. Drainage is needed for the construction of roads. Flooding can be controlled only by use of major flood control structures. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclasses IVw, irrigated, and VIIw, nonirrigated. It is in range site 27-4.

302—Fernley loamy sand, drained. This very deep, poorly drained soil is in sand-filled channels and basins on low stream terraces. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray, mottled sand.

Included in this unit are about 5 percent Dia soils on low terraces (range site 27-2) and 5 percent Dithod soils on stream terraces (range site 27-2). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fernley soil is very rapid. Available water capacity is low. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from April through September. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing, irrigated crops, and homesite development.

The potential plant community on this unit is mainly creeping wildrye, basin wildrye, western wheatgrass, and basin big sagebrush. The present vegetation in most areas is mainly rubber rabbitbrush, inland saltgrass, and black greasewood. The production of forage is limited by the low average annual precipitation, the low available water capacity, and the lowering of the water table in fall. The suitability of this unit for rangeland seeding is very poor. The main limitations are the sandy surface layer and the low average annual precipitation.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the sandy surface layer and low available water capacity. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and very rapid permeability. Drainage or special design is needed because of the high water table. Because the soil is very rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

This unit is limited for roads because of the hazards of flooding and frost heaving. If surface drainage and a stable base are provided, damage from frost heaving can be minimized.

This map unit is in capability subclasses IVw, irrigated, and VIIw, nonirrigated. It is in range site 27-2.

311—Fulstone cobbly loam, 2 to 8 percent slopes. This shallow, well drained soil is on alluvial fan remnants. It formed in alluvium derived dominantly from igneous and metamorphic rocks. Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown cobbly loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan that is cemented with lime and silica, and the lower part to a depth of 48 inches is light gray very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Included in this unit are about 6 percent Hunewill soils in swales and on skirts of fans (range site 26-16), 5 percent Lapon soils on low rounded hills (range site 27-20), and 4 percent Veta soils in drainageways and on inset alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for hay and pasture and homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, bottlebrush squirreltail, low sagebrush, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by restricted rooting depth, very low available water capacity, and the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity.

This unit is poorly suited to irrigated hay and pasture. The main limitations are the very low available water capacity, shallow depth to the hardpan, slope, and cobbles on the surface. Seedbed preparation should be on the contour or across the slope where practical. The slow movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Because of the limited depth to the hardpan, cuts required for leveling should be less than 3 inches deep. The use of equipment is limited by cobbles on the surface and by slope.

The main limitation for construction of dwellings is the depth to the hardpan. Heavy equipment is needed for excavation.

The main limitation for septic tank absorption fields is the depth to the hardpan. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan.

This unit is limited for roads because of the restricted depth to the hardpan. Roads should be designed to minimize cuts.

This map unit is in capability subclasses IVe, irrigated, and VIIs, nonirrigated. It is in range site 26-25.

312—Fulstone cobbly loam, 8 to 15 percent slopes. This shallow, well drained soil is on alluvial fan remnants. It formed in alluvium derived dominantly from igneous and metamorphic rocks. Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown cobbly loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Included in this unit are about 6 percent Hunewill soils in swales and on skirts of fans (range site 26-16), 5 percent Lapon soils on low rounded hills (range site 27-20), and 4 percent Veta soils in drainageways and on inset alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of the Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, bottlebrush squirreltail, low sagebrush, and Sandberg bluegrass. The present vegetation in most areas is mainly bottlebrush squirreltail and low sagebrush. The production of forage is limited by restricted rooting depth, very low available water capacity, and the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The main limitation for construction of dwellings is the depth to the hardpan. Heavy equipment is needed for excavation.

The main limitation for septic tank absorption fields is the depth to the hardpan. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan.

This unit is limited for roads because of the restricted depth to the hardpan. Roads should be designed to minimize cuts.

This map unit is in capability subclass VIIs, nonirrigated. It is in range site 26-25.

313—Fulstone association. This map unit is on old dissected alluvial fans. Slope is 4 to 30 percent. Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Fulstone very stony sandy loam, 4 to 15 percent slopes, and 35 percent Fulstone very stony sandy loam, 15 to 30 percent slopes. The Fulstone soil, 4 to 15 percent slopes, is in undulating areas and on the rolling tops of fans, and the Fulstone soil, 15 to 30 percent slopes, is on the side slopes.

Included in this unit are about 6 percent Hunewill soils in swales and on skirts of fans (range site 26-16), 5 percent Lapon soils on low rounded hills (range site 27-20), and 4 percent Veta soils in drainageways and on inset alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Fulstone soils are shallow and well drained. They formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown very stony sandy loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Fulstone soil, 4 to 15 percent slopes, is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Permeability of the Fulstone soil, 15 to 30 percent slopes, is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity, low average annual precipitation, and restricted rooting depth. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity and rock fragments on the surface.

The main limitations for construction of dwellings are the depth to the hardpan and the steepness of slope in some areas. Heavy equipment is needed for excavation.

The main limitations for septic tank absorption fields are the depth to the hardpan and steepness of slope in some areas. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan.

This unit is limited for roads because of depth to the hardpan and steepness of slope in some areas. Roads

should be designed to minimize cuts because of the limited depth to the underlying hardpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Fulstone soil, 4 to 15 percent slopes, is in capability subclass VIIs, nonirrigated, and in range site 26-25. The Fulstone soil, 15 to 30 percent slopes, is in capability subclass VIIe, nonirrigated, and in range site 26-25.

314—Fulstone-Reno association. This map unit is on old dissected alluvial fans. Slope is 4 to 30 percent. Elevation is 4,400 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 30 percent Fulstone cobbly loam, 4 to 15 percent slopes; 30 percent Reno cobbly sandy loam, 4 to 15 percent slopes; and 25 percent Fulstone stony loam, 15 to 30 percent slopes. The Fulstone cobbly loam is in the lower lying and intermediate areas, the Reno soil mainly is in the lower lying areas, and the Fulstone stony loam is in the higher lying areas and on dissected side slopes.

Included in this unit are about 5 percent Stucky soils on alluvial fans (range site 26-47), 5 percent Hunewill soils in swales on inset alluvial fans (range site 26-16), and 5 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Fulstone cobbly loam is shallow and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown cobbly loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Reno soil is moderately deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown cobbly sandy loam about 3 inches thick. The subsoil is dark brown sandy clay about 21 inches thick. The upper 20 inches of the substratum is a hardpan, and the lower part to a depth of 60 inches or more is very gravelly loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Permeability of the Reno soil is very slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Fulstone stony loam is shallow and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown stony loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of this Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage on the Fulstone soils is limited by the restricted rooting depth, low average annual precipitation, and very low available water capacity. The suitability of these soils for rangeland seeding is very poor. The main limitation is the very low available water capacity. The production of forage on the Reno soil is limited by the low average annual precipitation and low available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitation is the low available water capacity. Seeding of large areas of the more favorable Reno soil in this unit is difficult because of the pattern in which it occurs with areas of the less favorable Fulstone soils.

This unit is limited for roads because of the restricted depth to the hardpan in the Fulstone soils, the high content of clay in the subsoil of the Reno soil, and the steepness of slope in some areas. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan in the Fulstone soils. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface.

The Fulstone soil, 4 to 15 percent slopes, and the Reno soil are in capability subclass VIIs, nonirrigated. The Fulstone soil, 15 to 30 percent slopes, is in capability subclass VIIe, nonirrigated. All of the soils are in range site 26-25.

315—Fulstone-Stucky association. This map unit is on old dissected alluvial fans. Slope is 2 to 30 percent. Elevation is 6,000 to 7,000 feet. The average annual precipitation is about 8 inches, the average annual air

temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 55 percent Fulstone cobbly loam, 2 to 8 percent slopes, and 30 percent Stucky extremely cobbly loam, 15 to 30 percent slopes. The Fulstone soil is on the tops of alluvial fans, and the Stucky soil is on dissected side slopes.

Included in this unit are about 10 percent Shree soils on dissected side slopes (range site 26-10) and 5 percent Veta soils in drainageways and on inset fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Fulstone soil is shallow and well drained. It formed in alluvium derived from granitic rock. Typically, the surface layer is grayish brown cobbly loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The upper 12 inches of the substratum is a hardpan, and the lower part to a depth of 48 inches or more is pale brown very cobbly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Stucky soil is very deep and well drained. It formed in alluvium derived from granitic rock. Typically, the surface layer is light brownish gray extremely cobbly loam about 6 inches thick. The subsoil is yellowish brown extremely cobbly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is stratified extremely cobbly sandy loam to very stony clay loam.

Permeability of this Stucky soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Fulstone soil is mainly Thurber needlegrass, low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the restricted rooting depth, low average annual precipitation, and very low available water capacity. The suitability of this Fulstone soil for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The potential plant community on the Stucky soil is mainly low sagebrush, desert needlegrass, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low available water capacity and the low average annual precipitation. The suitability of this Stucky soil for rangeland seeding is poor. The main limitations are the low precipitation and rock fragments on the surface. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

The Fulstone soil is limited for roads because of the restricted depth to the hardpan. Roads should be designed to minimize cuts. The Stucky soil is limited for roads because of slope and rock fragments throughout the soil. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the Stucky soil create road hazards and increase maintenance cost.

This unit is in capability subclass VIIs, nonirrigated. The Fulstone soil is in range site 26-25, and the Stucky soil is in range site 26-47.

321—Haybourne loam. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from granitic rock. Slope is 0 to 2 percent. Elevation is 4,800 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown loam about 11 inches thick. The subsoil is yellowish brown sandy loam abut 21 inches thick. The substratum to a depth of 60 inches or more is yellowish brown, stratified sandy loam and loamy sand.

Included in this unit are about 6 percent Saralegui soils on high lake terraces (range site 26-16) and 4 percent Hotsprings soils on the upper parts of alluvial fans (range site 26-26). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Haybourne soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

Most areas of this unit are used for livestock grazing and wildlife habitat. A few areas are used for homesite development. The unit can be used for irrigated pasture and cultivated crops if water is made available.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and Anderson peachbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, Douglas rabbitbrush, Anderson peachbrush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for

rangeland seeding is poor. The main limitation is the low average annual precipitation.

The main limitation for construction of dwellings is the hazard of flooding. It is difficult to establish and maintain structures that can protect the unit from flooding.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for roads because of the hazard of flooding and the potential for frost heaving. If surface drainage and a stable base are provided, damage from frost heaving is minimized for streets and roads on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIs, nonirrigated. It is in range site 26-16.

331—Hocar-Rock outcrop complex, 15 to 30 percent slopes, eroded. This map unit is on low mountains that have long narrow ridges and side slopes. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 110 days.

This unit is 75 percent Hocar gravelly loam, 15 to 30 percent slopes, and 15 percent Rock outcrop. The Hocar soil is on mountainsides, and the Rock outcrop is mainly on ridges.

Included in this unit are about 5 percent Koontz soils on convex, south-facing side slopes (range site 26-15) and 5 percent sandy soils on dunes (range site 27-23). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Hocar soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from metasedimentary rock. Typically, the surface layer is brown gravelly loam about 9 inches thick. The underlying material to a depth of 19 inches is yellowish brown very gravelly loam. Soft, fractured bedrock is at a depth of 19 inches. Depth to bedrock ranges from 7 to 20 inches.

Permeability of the Hocar soil is moderate. Available water capacity is very low. Effective rooting depth is 7 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of bedrock.

This unit is used for livestock grazing.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, antelope bitterbrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly bottlebrush squirreltail, Wyoming big sagebrush, and antelope bitterbrush. Pinyon and juniper trees have invaded. The production of forage is limited by the very low available water capacity, low average annual precipitation, and loss of moisture because of runoff. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Livestock grazing should be managed to protect the unit from excessive erosion. Because of the density of the pinyon and juniper trees in most areas, this unit can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

This unit is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIe, nonirrigated, and in range site 26-15.

341—Holbrook very stony sandy loam, 4 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,800 to 5,400 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown very stony sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very gravelly sandy loam that is light brownish gray.

Included in this unit are about 7 percent Veta soils in drainageways (range site 26-24), 5 percent Hotsprings soils on toe slopes of alluvial fans (range site 26-16), and 3 percent Rebel soils on toe slopes of alluvial fans (range site 26-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Holbrook soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

Most areas of this unit are used for livestock grazing and wildlife habitat. A few areas are used for homesite development.

The potential plant community on this unit is mainly antelope bitterbrush, Wyoming big sagebrush, and Thurber needlegrass. The present vegetation in most areas is mainly antelope bitterbrush, Wyoming big sagebrush, and green ephedra. Pinyon trees have invaded. The production of forage is limited by the low average annual precipitation and the very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity of the surface layer. Grazing

should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Because of the density of the pinyon trees in most areas, this unit can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

The main limitation for construction of dwellings is rare periods of flooding. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

Slope is a concern in installing septic tank absorption fields. Absorption lines should be installed on the contour.

Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-10.

343—Holbrook-Hotsprings complex, 2 to 15 percent slopes. This map unit is on alluvial fans. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Holbrook stony sandy loam, 8 to 15 percent slopes, and 30 percent Hotsprings gravelly loamy coarse sand, 2 to 8 percent slopes. The Holbrook soil is on the upper part of fans, and the Hotsprings soil is on the lower part.

Included in this unit are about 4 percent Veta soils in drainageways (range site 26-24), 3 percent Haybourne soils on toe slopes of alluvial fans (range site 26-16), and 3 percent Rebel soils on toe slopes of alluvial fans (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Holbrook soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown stony sandy loam about 7 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very gravelly sandy loam that is light brownish gray.

Permeability of the Holbrook soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Hotsprings soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is brown gravelly loamy coarse sand about 5 inches thick. The underlying material to a depth of 60 inches or more is yellowish brown gravelly loamy sand.

Permeability of the Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development and irrigated cultivated crops.

The potential plant community on this unit is mainly Wyoming big sagebrush, Thurber needlegrass, bottlebrush squirreltail, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, spineless horsebrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the restricted available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the restricted available water capacity of the surface layer. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

If this unit is used for irrigated cultivated crops, the main limitations are slope and the stony surface layer of the Holbrook soil and the low available water capacity of the Hotsprings soil. Sprinkler irrigation is the most suitable method of applying water. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. All tillage should be on the contour or across the slope.

The main limitation for construction of dwellings on the Holbrook soil is the rare periods of flooding. The Hotsprings soil is well suited to the construction of dwellings. Buildings should be located above the expected flood level.

The main limitation for septic tank absorption fields on the Hotsprings soil is poor filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water. The main limitations for septic tank absorption fields on the Holbrook soil are the rare periods of flooding and large stones. Slope is also a concern in installing septic tank absorption fields. Absorption lines should be installed on the contour.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. The Hotsprings soil is flooded less frequently and is therefore more suitable for the construction of roads. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

344—Holbrook-Shree association. This map unit is on the upper part of alluvial fans. Slope is 4 to 8 percent. Elevation is 6,400 to 7,500 feet. The average annual precipitation is about 11 inches, the average annual air

temperature is about 49 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 45 percent Holbrook stony sandy loam and 40 percent Shree very gravelly loam. The Holbrook soil is on inset fans, and the Shree soil is on slightly convex fan remnants.

Included in this unit are about 10 percent Veta soils in drainageways (range site 26-24) and 5 percent Hotsprings soils on toe slopes of alluvial fans (range site 26-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Holbrook soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown stony sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is stratified and averages very gravelly sandy loam that is light brownish gray.

Permeability of this Holbrook soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Shree soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is brown very gravelly loam about 10 inches thick. The subsoil is light yellowish brown very gravelly clay loam about 16 inches thick. The substratum to a depth of 60 inches or more is very pale brown extremely gravelly loam.

Permeability of this Shree soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, basin wildrye, Wyoming big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and Anderson peachbrush. The production of forage is limited by the restricted available water capacity and the moderate average annual precipitation.

The suitability of the Holbrook soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. The suitability of the Shree soil for rangeland seeding is fair. The main limitations are the very gravelly surface layer and moderate average annual precipitation.

Seeding of large areas of the more favorable Shree soil in this unit is difficult because of the pattern in which they occur with areas of the less favorable Holbrook soil. Grazing should be delayed until the soils are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

If surface drainage and a stable base are provided, damage from frost heaving can be minimized for roads on this unit. It is difficult to establish and maintain structures that can protect this unit from flash flooding.

This unit is in capability subclass VIIs, nonirrigated, and in range site 26-10.

345—Holbrook Variant-Rock outcrop complex, 30 to 75 percent slopes. This map unit is on hills and mountains. Elevation is 5,000 to 6,200 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 70 percent Holbrook Variant very stony fine sandy loam, 30 to 75 percent slopes, and 20 percent Rock outcrop. The Holbrook Variant soil is on mountains and hillsides, and Rock outcrop is on ridges and extremely steep side slopes.

Included in this unit is about 10 percent Rubble land on very steep side slopes, commonly associated with areas of Rock outcrop. The percentage varies from one area to another.

The Holbrook Variant soil is moderately deep and well drained. It formed in colluvium derived dominantly from andesite and basalt. Typically, the surface layer is light brownish gray and pale brown very stony fine sandy loam about 9 inches thick. The subsoil is light yellowish brown very cobbly sandy loam about 11 inches thick. The substratum is pale brown very gravelly fine sandy loam about 15 inches thick. Hard andesite is at a depth of 35 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Holbrook Variant soil is moderately rapid. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of bedrock.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Holbrook Variant soil is mainly Thurber needlegrass, basin wildrye, Wyoming big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and Anderson peachbrush. The production of forage is limited by the low available water capacity and the moderate average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low available water capacity of the surface layer and slope. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of slope and the areas of Rock outcrop. Cutting and filling can be reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance costs reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Holbrook soil is in range site 26-10.

352—Hotsprings loamy coarse sand, 2 to 8 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from granitic rock. Elevation is 4,400 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown loamy coarse sand about 4 inches thick. The underlying material to a depth of 60 inches or more is yellowish brown gravelly loamy sand.

Included in this unit are about 8 percent Holbrook soils on the upper part of alluvial fans (range site 26-10), 4 percent Haybourne soils on toe slopes of alluvial fans (range site 26-16), and 3 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing and irrigated cultivated crops. It is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, Wyoming big sagebrush, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and Anderson peachbrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

If this unit is used for irrigated cultivated crops, the main limitations are slope, rapid permeability, and low available water capacity. Sprinkler irrigation is best suited to the unit. Because the soil is droughty, applications of irrigation water should be light and frequent. Soil blowing can be controlled by keeping the soil rough and cloddy when it is not protected by vegetation.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

If surface drainage and a stable base are provided, damage from frost heaving can be minimized for roads on this unit.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

353—Hotsprings gravelly loamy coarse sand, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from granitic rock. Elevation is 4,400 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown gravelly loamy coarse sand about 4 inches thick. The underlying material to a depth of 60 inches or more is yellowish brown gravelly loamy sand.

Included in this unit are about 6 percent Holbrook soils on the upper part of alluvial fans (range site 26-10), 6 percent Haybourne soils on toe slopes of alluvial fans (range site 26-16), and 3 percent Veta soils in drainageways (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for irrigated cultivated crops and livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, Wyoming big sagebrush, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and Anderson peachbrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low available water capacity.

If this unit is used for irrigated cultivated crops, the main limitations are rapid permeability and low available water capacity. Because the water intake rate is rapid, sprinkler irrigation is best suited to the soil in this unit. Because the soil is droughty, applications of irrigation water should be light and frequent.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

If surface drainage and a stable base are provided, damage from frost heaving can be minimized for roads on this unit.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

354—Hotsprings-Holbrook complex, 2 to 4 percent slopes. This map unit is on alluvial fans. Elevation is 4,400 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Hotsprings gravelly loamy coarse sand and 40 percent Holbrook cobbly loamy coarse sand. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Veta soils in drainageways (range site 26-24).

The Hotsprings soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is brown gravelly loamy coarse sand about 4 inches thick. The underlying material to a depth of 60 inches or more is yellowish brown gravelly loamy sand.

Permeability of the Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Holbrook soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is grayish brown cobbly loamy coarse sand about 8 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray very gravelly sandy loam and very gravelly loam.

Permeability of the Holbrook soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and livestock grazing. It is also used for homesite development.

The potential plant community on the Hotsprings soil is mainly Wyoming big sagebrush, Indian ricegrass, and Thurber needlegrass. The present vegetation in most areas is mainly Anderson peachbrush, Wyoming big sagebrush, and green ephedra. Scattered pinyon trees have invaded. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low available water capacity.

The potential plant community on the Holbrook soil is mainly Thurber needlegrass, Indian ricegrass, bottlebrush squirreltail, and Wyoming big sagebrush. The present vegetation in most areas is mainly Anderson peachbrush, Wyoming big sagebrush, green ephedra, and scattered pinyon trees. The production of forage is limited by the very low available water capacity and low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low available water capacity.

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

If this unit is used for irrigated cultivated crops, the main limitations are the low available water capacity, the rapid permeability of the Hotsprings soil, and the moderately rapid permeability and cobbly surface layer of the Holbrook soil. Because the water intake rate is rapid or moderately rapid, sprinkler irrigation is best suited to this unit. Because the soils are droughty, applications of irrigation water should be light and frequent.

The main limitation for construction of dwellings on the Holbrook soil is rare periods of flooding. Buildings should be located above the expected flood level. The Hotsprings soil is well suited to construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent in the Hotsprings soil. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water or nearby water supplies.

If surface drainage and a stable base are provided, damage from frost heaving can be minimized for roads on this unit. The Hotsprings soil in this unit floods less frequently and is more favorable for the construction of roads.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

361—Hough sand, 0 to 2 percent slopes. This very deep, well drained soil is on lake plains and stream terraces. It formed in eolian material modified with alluvial and lacustrine sediment derived dominantly from intrusive and extrusive igneous rock. Elevation is 4,100 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 53 degrees F, and the average frost-free period is 110 to 130 days.

Typically, the surface layer is light brownish gray sand about 10 inches thick. The subsoil is brown sandy clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is brown and yellowish brown fine sand to coarse sand and has many iron oxide mottles.

Included in this unit are about 4 percent Rusty soils in slightly elevated areas of lake plains (range site 27-9), 4 percent Patna soils in hummocky areas (range site 27-9), and 2 percent small playas in shallow, blown out depressional areas. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hough soil is moderate to a depth of 21 inches and very rapid below this depth. Available

water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing, wildlife habitat, and homesite development. The unit can be used for irrigated cultivated crops if water is made available.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly littleleaf horsebrush, Indian ricegrass, and Douglas rabbitbrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and low available water capacity. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration. Because the substratum is very rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-18.

371—Hyloc-Ister association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 5,500 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 46 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 45 percent Hyloc very cobbly sandy loam, 15 to 30 percent slopes, and 40 percent Ister extremely stony sandy loam, 30 to 50 percent slopes. The Hyloc soil is on south- and west-facing slopes, and the Ister soil is on north- and east-facing slopes.

Included in this unit are about 6 percent Lunder soils on alluvial fan remnants (range site 26-23), 5 percent Rock outcrop on ridges and steep slopes, and 4 percent Rubble land on steep slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Hyloc soil is shallow and well drained. It formed in residuum derived dominantly from andesite and basalt. Typically, the surface layer is grayish brown very cobbly sandy loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. Weathered bedrock is at a depth of 18 inches. Depth to soft bedrock ranges from 14 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Permeability of the Hyloc soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Ister soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from basic igneous rock. Typically, 40 to 80 percent of the surface is covered with stones, cobbles, and pebbles. The surface layer is light yellowish brown and dark grayish brown extremely stony sandy loam about 17 inches thick. The subsoil averages very stony sandy clay loam that is light yellowish brown. It is about 21 inches thick. Hard bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of the Ister soil is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for wood products, livestock grazing, wildlife habitat, and watershed.

The Hyloc soil can produce 3 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are the very cobbly surface layer and the hazard of erosion. Stones and cobbles on the surface interfere with the use of equipment.

The potential plant community on the Ister soil is mainly western needlegrass, mountain big sagebrush, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and bottlebrush squirreltail. Many pinyon trees have invaded. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope and rock fragments on the surface. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the soil from excessive erosion and to prevent overgrazing in the less sloping areas. Because of the density of the pinyon trees in most areas, this soil can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

The Hyloc soil is limited for roads because of low soil strength resulting from the content of highly expansive clay and because of slope. The Ister soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and adequate wearing surface. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Hyloc soil is in capability subclass VIIe, nonirrigated. The Ister soil is in capability subclass VIIs, nonirrigated, and in range site 26-5.

372—Hyloc-Ister-Rock outcrop association. This map unit is on mountains. Slope is 30 to 75 percent. Elevation is 5,500 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 46 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 35 percent Hyloc very cobbly sandy loam, 30 to 50 percent slopes; 35 percent Ister very stony sandy loam, 50 to 75 percent slopes; and 15 percent Rock outcrop. The Hyloc soil is on south- and west-facing slopes, the Ister soil is on north- and east-facing slopes, and the Rock outcrop is on ridges and very steep slopes.

Included in this unit are about 10 percent Rubble land on very steep slopes, 4 percent Shree soils on alluvial fans (range site 26-10), and 1 percent wet, dark colored soils at the bottom of draws, near springs or seeps (aspen woodland). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Hyloc soil is shallow and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is grayish brown very cobbly sandy loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. Weathered bedrock is at a depth of 18 inches. Depth to weathered bedrock is 14 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Permeability of this Hyloc soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Ister soil is moderately deep and well drained. It formed in colluvium derived dominantly from basic igneous rock. Typically, 40 to 80 percent of the surface is covered with stones and cobbles. The surface layer is dark yellowish brown very stony sandy loam about 17 inches thick. The subsoil is light yellowish brown very stony sandy clay loam about 21 inches thick. Andesitic bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of this Ister soil is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for wood products, watershed, and wildlife habitat. It is also used for livestock grazing.

The Hyloc soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are the hazard of erosion, steep slopes, the very cobbly surface layer, and areas of Rock outcrop. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The potential plant community on the Ister soil is mainly western needlegrass, mountain big sagebrush, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush and antelope bitterbrush. Many pinyon trees have invaded. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and stones on the surface. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this soil from excessive erosion and to prevent overgrazing in the less sloping areas. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Because of the density of the pinyon trees in most areas, this soil can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

The Hyloc soil is limited for roads because of low soil strength resulting from the content of highly expansive clay and because of slope. The Ister soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Roads should be provided with a stable base and an adequate wearing surface.

The Hyloc soil is in capability subclass VIIe, nonirrigated. The Ister soil is in capability subclass VIIs, nonirrigated, and in range site 26-5.

391—Juva gravelly silt loam, 0 to 2 percent slopes. This very deep, well drained soil is on broad alluvial fans. It formed in alluvium derived dominantly from andesite, basalt, and sediment. Elevation is 4,200 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray gravelly silt loam about 4 inches thick. The underlying material to a depth of 60 inches or more is finely stratified, light brownish gray and light gray gravelly loamy sand to loam. In some areas the rock fragments are mostly carbonaceous shale.

Included in this unit are about 5 percent Malpais soils in swales and drainageways (range site 27-18) and 5 percent Bluewing soils on lake and stream terraces (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Juva soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil

blowing is slight. This soil is subject to occasional, very brief periods of flooding from June through September.

This unit is used for livestock grazing and wildlife habitat. The unit can be used for irrigated cultivated crops if water is made available.

The potential plant community on this unit is mainly Indian ricegrass and winterfat. The present vegetation in most areas is mainly Bailey greasewood, low rabbitbrush, shadscale, winterfat, and bud sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of occasional periods of flooding. It is difficult to establish and maintain structures that can protect the unit from flash flooding.

This map unit is in capability subclasses IIw, irrigated, and VIIw, nonirrigated. It is in range site 27-14.

392—Juva gravelly fine sandy loam, 2 to 4 percent slopes. This very deep, well drained soil is on broad alluvial fans. It formed in alluvium derived dominantly from andesite, basalt, and shaly metasedimentary rock. Elevation is 4,200 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer averages gravelly fine sandy loam that is light brownish gray. It is about 4 inches thick. The underlying material to a depth of 60 inches or more is finely stratified, light brownish gray and light gray very gravelly loamy sand to loam. In some areas the rock fragments are mostly carbonaceous shale.

Included in this unit are about 10 percent Malpais soils in drainageways (range site 27-18) and 5 percent Bluewing soils on lake terraces and stream terraces (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Juva soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding from June through September.

This unit is used for livestock grazing and wildlife habitat. The unit can be used for irrigated cultivated crops if water is made available.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, Bailey greasewood, and bottlebrush squirreltail. The present vegetation in most areas is mainly Bailey greasewood, low rabbitbrush, shadscale, and bud sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of occasional periods of flooding. It is difficult to establish and maintain structures that can protect the unit from flash flooding.

This map unit is in capability subclasses IIw, irrigated, and VIIw, nonirrigated. It is in range site 27-18.

401—Lahontan silty clay loam, strongly saline-alkali. This very deep, somewhat poorly drained soil is on old lake plains. It formed in fine textured lacustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,700 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray and pale brown silty clay loam about 12 inches thick. The underlying material to a depth of 60 inches or more is pale brown and light gray, stratified clay, silty clay, and silty clay loam.

Included in this unit are about 5 percent Orizaba soils that are artificially drained (range site 27-24) and 5 percent Delp soils on stabilized dunes and hummocks (range site 27-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Lahontan soil is very slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly salt- and alkali-affected throughout the profile. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly black greasewood, shadscale, and alkali seepweed. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the strongly saline and alkali condition of the soil. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of low soil strength resulting from the high content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-25.

411—Lapon extremely stony loam, 15 to 30 percent slopes. This very shallow, well drained soil is on hills and mountains. It formed in residuum derived dominantly from basic igneous rock. Elevation is 4,400 to 7,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray extremely stony loam about 2 inches thick. The subsoil is brown and very gravelly clay loam about 8 inches thick. The next layer is a hardpan that is cemented with silica and lime and is about 10 inches thick. Fractured andesite is at a depth of 20 inches. Depth to the hardpan ranges from 8 to 14 inches. Depth to bedrock ranges from 15 to 40 inches.

Included in this unit are about 5 percent Risue soils on high-lying old dissected fans (range site 27-18), 3 percent Patna soils that formed in sandy eolian deposits on the leeward side of hills and draws (range site 27-9), and 2 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly low sagebrush, pine bluegrass, and Thurber needlegrass. The present vegetation in most areas is mainly low sagebrush, Douglas rabbitbrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, the very low available water capacity, and loss of moisture because of runoff. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Livestock grazing should be managed to protect the soil from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the soil to produce plants suitable for grazing.

This unit is limited for roads because of shallow depth to the cemented hardpan and slope. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan and bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-20.

412—Lapon-Rubble land-Rock outcrop association. This map unit is on hills and mountains. Slope is 15 to 30 percent. Elevation is 4,400 to 7,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Lapon extremely stony loam, 15 to 30 percent slopes; 20 percent Rubble land; and 15 percent Rock outcrop. The Lapon soil is on the tops and upper side slopes of hills and mountains, Rubble land is in slightly concave areas, and Rock outcrop is on ridges.

Included in this unit are about 8 percent soils that are moderately deep over bedrock and are on slightly concave side slopes (range site 26-16), 3 percent Risue soils on high dissected alluvial fan remnants (range site 27-18), 2 percent Patna soils that formed in sandy eolian deposits (range site 27-9), and 2 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Lapon soil is very shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray extremely stony loam about 2 inches thick. The subsoil is brown very gravelly clay loam about 8 inches thick. The next layer is a hardpan that is cemented with silica and lime and is about 26 inches thick. Fractured andesite is at a depth of 36 inches. Depth to the hardpan ranges from 8 to 14 inches. Depth to bedrock ranges from 15 to 40 inches.

Permeability of the Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rubble land consists of stringers of cobbles, stones, and boulders. It supports little if any vegetation except lichens.

Rock outcrop consists of exposures of basic igneous bedrock.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Lapon soil is mainly low sagebrush, pine bluegrass, and Thurber needlegrass. The present vegetation in most areas is mainly low sagebrush, Douglas rabbitbrush, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, the very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Livestock grazing should be managed to protect this soil from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the soil to produce plants suitable for grazing.

This unit is limited for roads because of the numerous areas of Rock outcrop and Rubble land. The Lapon soil is limited for roads because of shallow depth to the cemented hardpan and slope. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan and bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Lapon soil is in capability subclass VIIs, nonirrigated, and in range site 27-20.

413—Lapon-Fulstone-Old Camp association. This map unit is on hillsides, adjacent faulted terraces, and alluvial fans. Slope is 2 to 30 percent. Elevation is 5,800 to 6,800 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 35 percent Lapon very cobbly silt loam, 4 to 15 percent slopes; 30 percent Fulstone cobbly loam, 2 to 8 percent slopes; and 25 percent Old Camp very stony loam, 15 to 30 percent slopes. The Lapon soil is on the tops of terraces and on upper side slopes, the Fulstone soil is on alluvial fans below terraces, and the Old Camp soil is on the lower part of hillsides.

Included in this unit are about 4 percent Veta soils in drainageways (range site 26-24), 3 percent Rock outcrop on ridges and steep slopes, and 3 percent Patna soils on the leeward sides of hills and draws (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Lapon soil is very shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very cobbly silt loam about 6 inches thick. The subsoil is brown very gravelly clay loam about 8 inches thick. The next layer is a hardpan that is cemented with silica and lime and is about 26 inches thick. Hard andesite is at a depth of 40 inches. Depth to the hardpan ranges from 8 to 14 inches. Depth to bedrock ranges from 15 to 40 inches.

Permeability of the Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Fulstone soil is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is grayish brown cobbly loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. The next layer is a hardpan that is cemented with silica and lime and is about 12 inches thick. Below this to a depth of 48 inches or more or more is very cobbly sandy loam that is weakly cemented with silica and lime in a few spots. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Fulstone soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very stony loam about 4 inches thick. The subsoil is brown very cobbly clay loam about 13 inches thick. Andesite is at a depth of 17 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Lapon soil is mainly low sagebrush, Thurber needlegrass, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and pine bluegrass. The production of forage is limited by the very low available water capacity and low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The potential plant community on the Fulstone soil is mainly low sagebrush, Thurber needlegrass, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The production of forage is limited by the low average annual precipitation and the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The potential plant community on the Old Camp soil is mainly desert needlegrass, Thurber needlegrass, and Wyoming big sagebrush. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and the very low available water capacity.

The stones and cobbles on the surface of the soils in this unit interfere with use of mechanical equipment and the movement of livestock.

The Lapon and Fulstone soils are limited for roads because of shallow depth to the hardpan. The Old Camp soil is limited for roads because of shallow depth to bedrock, slope, and the content of stones and cobbles. Roads should be designed to minimize cuts because of

the limited depth to bedrock and hardpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the Old Camp soil create road hazards and increase maintenance cost.

The Lapon and Fulstone soils are in capability subclass VIIs, nonirrigated, and the Old Camp soil is in capability subclass VIIe, nonirrigated. The Lapon soil is in range site 27-20, the Fulstone soil is in range site 26-25, and the Old Camp soil is in range site 27-22.

441—Lunder very cobbly loam, 2 to 15 percent slopes. This shallow, well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 6,000 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

Included in this unit is about 10 percent Shree soils on the upper part of alluvial fans (range site 26-10).

Typically, the surface layer averages very cobbly loam that is brown. It is about 7 inches thick. The subsoil is brown cobbly clay about 9 inches thick. The upper 15 inches of the substratum is a hardpan that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is very pale brown and pale brown extremely cobbly sandy loam that is weakly to strongly cemented with silica and lime. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of this Lunder soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, Canby bluegrass, and low sagebrush. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and widely scattered singleleaf pinyon. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this unit for rangeland seeding is very poor. The main limitations are rock fragments on the surface, restricted rooting depth, and very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of restricted depth to the hardpan and cobbles on the surface. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-23.

451—Obanion loamy coarse sand. This very deep, very poorly drained soil is in small basins and on alluvial fans and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 7 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loamy coarse sand about 11 inches thick. The underlying material to a depth of 60 inches or more is mottled and gleyed, stratified sandy loam to sandy clay loam.

Included in this unit are about 5 percent Hotsprings soils on toe slopes of alluvial fans (range site 26-16) and 5 percent Haybourne soils on toe slopes of alluvial fans (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Obanion soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 0.5 to 2.0 feet from January through December. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for waterfowl habitat.

The potential and present plant community on this unit is mainly sedges and rushes. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the seasonal high water table. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of the hazard of frost heaving and the seasonal high water table. Local roads and streets may require a special base to avoid frost heave damage. Drainage is needed for the construction of roads and to reduce maintenance cost.

This map unit is in capability subclass Vw, nonirrigated, and in range site 27-1.

452—Obanion sandy loam, drained. This very deep, very poorly drained soil is on alluvial fans and alluvial flats. The drainage has been altered as a result of changes in the original course of streams or as a result of channel entrenchment. The soil formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 7 inches, the average

annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 11 inches thick. The underlying material to a depth of 60 inches or more is mottled, stratified sandy loam to sandy clay loam.

Included in this unit are about 5 percent Saralegui soils on lake terraces (range site 26-16) and 5 percent Haybourne soils on toe slopes of alluvial fans (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Obanion soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.0 to 3.5 feet from January through December. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated cultivated crops.

The potential and present plant community on this unit is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasonal high water table. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIIw, irrigated, and VIw, nonirrigated. It is in range site 27-4.

453—Obanion sandy loam, saline-alkali. This very deep, very poorly drained soil is in basins and on alluvial fans and alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 7 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 11 inches thick. The underlying material to a depth of 60 inches or more is mottled and gleyed, stratified sandy loam to sandy clay loam.

Included in this unit are small areas of nonsaline and nonalkali Obanion soils in shallow depressional areas (range site 27-1). Included areas make up about 10 percent of the total acreage.

Permeability of this Obanion soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 0.5 to 2.0 feet from January through December. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected to a depth of 11 inches.

This unit is used mainly for livestock grazing. It is also used for waterfowl habitat.

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass, and black greasewood. The present vegetation in most areas is mainly inland saltgrass, creeping wildrye, and black greasewood. The production of forage is limited by the low average annual precipitation and the content of salts and alkali in the surface layer. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main limitations are the seasonal high water table and the content of salts and alkali. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of the hazard of frost heaving and the seasonal high water table. Local roads and streets may require a special base to avoid frost heave damage. Drainage is needed for the construction of roads and to reduce maintenance cost.

This map unit is in capability subclass VIw, nonirrigated, and in range site 27-5.

462—Olac-Rock outcrop complex, 8 to 15 percent slopes. This map unit is on strongly sloping uplands. Elevation is 4,800 to 5,900 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 70 percent Olac very stony loam, 8 to 15 percent slopes, and 20 percent Rock outcrop. The Olac soil is mostly on south- and west-facing slopes, and Rock outcrop is along ridges and on some side slopes.

Included in this unit are about 6 percent Old Camp soils on concave, north-facing slopes (range site 26-22) and 4 percent Veta soils that are flooded and are in drainageways (range site 26-34). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Olac soil is very shallow and well drained. It formed in residuum derived dominantly from rhyolitic tuff. Typically, the surface layer is grayish brown very stony loam about 4 inches thick. The subsoil is yellowish brown extremely gravelly clay loam about 10 inches

thick. Rhyolite is at a depth of 14 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of rhyolitic tuff.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity and the restricted rooting depth. The suitability of this unit for rangeland seeding is very poor. The main limitations are the very low available water capacity and rock fragments on the surface. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

This unit is limited for roads because of the restricted depth to bedrock. Roads should be designed to minimize cuts.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-25.

464—Olac-Rock outcrop complex, 15 to 50 percent slopes. This map unit is on uplands. Elevation is 4,800 to 5,900 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 65 percent Olac very stony loam, 15 to 50 percent slopes, and 20 percent Rock outcrop. The Olac soil is on hillsides and mountainsides, and the Rock outcrop is on ridges and very steep slopes.

Included in this unit are about 12 percent Old Camp soils on concave, north-facing slopes (range site 26-22) and 3 percent Veta soils that are flooded and are in drainageways (range site 26-34). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Olac soil is very shallow and well drained. It formed in residuum derived dominantly from rhyolitic tuff. Typically, the surface layer is grayish brown very stony loam about 3 inches thick. The subsoil is yellowish brown extremely gravelly clay loam about 7 inches thick. Rhyolite is at a depth of 10 inches. Depth to rhyolite ranges from 8 to 14 inches.

Permeability of this Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of rhyolitic tuff.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly low sagebrush, Thurber needlegrass, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The production of forage is limited by the very low available water capacity and the restricted rooting depth. The suitability of this unit for rangeland seeding is very poor. The main limitations are slope, the very low available water capacity, and rock fragments on the surface. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

This unit is limited for roads because of slope and the restricted depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-25.

466—Olac-Ister-Rock outcrop association. This map unit is on hills. Slope is 30 to 50 percent. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 50 percent Olac very stony loam, 30 to 50 percent slopes; 25 percent Ister extremely stony sandy loam, 30 to 50 percent slopes; and 15 percent Rock outcrop. The Olac soil is on south-facing, convex slopes; the Ister soil is on north-facing, concave slopes; and Rock outcrop is on ridges.

Included in this unit is about 10 percent Old Camp soils on east-facing slopes.

The Olac soil is very shallow and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is light brownish gray and grayish brown very stony loam about 4 inches thick. The subsoil is grayish brown extremely gravelly clay loam about 10 inches thick. Andesite is at a depth of 14 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Ister soil is moderately deep and well drained. It formed in colluvium derived dominantly from andesite. Typically, the surface layer is dark grayish brown extremely stony sandy loam about 11 inches thick. The subsoil is dark brown and brown very stony clay loam about 27 inches thick. Bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of the Ister soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 25 to 40 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of andesite.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Olac soil is mainly low sagebrush, Thurber needlegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush and desert needlegrass. The production of forage is limited by the low average annual precipitation and restricted rooting depth.

The potential plant community on the Ister soil is mainly mountain big sagebrush, antelope bitterbrush, western needlegrass, and basin wildrye. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and Thurber needlegrass. The production of forage is limited by the low average annual precipitation.

The suitability of this unit for rangeland seeding is very poor. The main limitations are slope and rock fragments on the surface. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

The Olac soil is limited for roads because of slope and depth to bedrock. The Ister soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Olac soil is in range site 26-25, and the Ister soil is in range site 26-5.

471—Oppio-Nosrac association. This map unit is on mountains. Slope is 30 to 50 percent. Elevation is 5,700 to 6,200 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 80 to 110 days.

This unit is 70 percent Oppio very stony fine sandy loam and 20 percent Nosrac stony clay loam. The Oppio soil is on south-facing side slopes, and the Nosrac soil is on north-facing side slopes.

Included in this unit are about 5 percent Devada soils on short, rounded or convex side slopes (range site 26-23) and 5 percent Rock outcrop on ridges. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Oppio soil is moderately deep and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is light brownish gray and grayish brown very stony fine sandy loam about 6 inches thick. The subsoil is pale brown clay about 25 inches thick. Andesite is at a depth of 31 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Oppio soil is slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Nosrac soil is very deep and well drained. It formed in residuum and colluvium derived dominantly from andesite and basalt. Typically, the surface layer is grayish brown stony clay loam about 12 inches thick. The subsoil is brown very gravelly clay loam about 48 inches or more in thickness.

Permeability of the Nosrac soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Oppio soil is mainly Wyoming big sagebrush, Thurber needlegrass, antelope bitterbrush, and bluebunch wheatgrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. Singleleaf pinyon has invaded. The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and rock fragments on the surface.

The potential plant community on the Nosrac soil is mainly mountain big sagebrush, western needlegrass, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush and Nevada bluegrass. Singleleaf pinyon has invaded. The production of forage is limited by the moderate available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is slope.

If the plant cover is disturbed, protection from flooding is needed to control gullying, streambank cutting, and sheet erosion. Slope limits access by livestock and results in overgrazing of the less sloping areas. Because of the density of the pinyon trees in most areas, this unit can be managed as woodland. The reestablishment of the rangeland plant community in some areas may be difficult.

The Oppio soil is limited for roads because of slope and the high content of clay in the subsoil. The Nosrac soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and an

adequate wearing surface. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Oppio soil is in range site 26-10. The Nosrac soil is in range site 26-5.

481—Orizaba sandy loam. This very deep, somewhat poorly drained soil is on nearly level alluvial flats and lake plains. It formed in alluvial and lacustrine material derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly very pale brown, mottled silty clay loam stratified with loam and silt loam.

Included in this unit are about 5 percent Fallon soils that are saline and alkali and are on low stream terraces (range site 27-5) and 5 percent Delp soils on stabilized dunes and hummocks (range site 27-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Orizaba soil is moderately slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. This soil is moderately salt- and alkali-affected to a depth of 30 inches.

This unit is used mainly for irrigated cultivated crops and livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly basin big sagebrush, basin wildrye, creeping wildrye, and black greasewood. The present vegetation in most areas is mainly black greasewood, inland saltgrass, rubber rabbitbrush, and fourwing saltbush. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main limitations are the content of salts and alkali and the low average annual precipitation. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the content of salts and alkali and the seasonal high water table. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitations for septic tank absorption fields are the seasonal high water table and the moderately slow permeability. Drainage or special design is needed because of the high water table. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIIw, irrigated, and VIIw, nonirrigated. It is in range site 26-12.

482—Orizaba loam, strongly saline-alkali. This very deep, somewhat poorly drained soil is on lake plains and alluvial flats. It formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly very pale brown, mottled silty clay loam stratified with loam and silt loam.

Included in this unit are about 5 percent Dithod soils that are saline and alkali and are in oxbows and sand-filled channels (range site 27-5) and 5 percent Parran soils in small basins (range site 27-25). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Orizaba soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. This soil is strongly salt- and alkali-affected in the surface layer.

This unit is used for wildlife habitat and livestock grazing.

The potential plant community on this unit is mainly inland saltgrass, black greasewood, alkali sacaton, and creeping wildrye. The present vegetation in most areas is mainly pickleweed, seepweed, fourwing saltbush, and inland saltgrass. The production of forage is limited by the low average annual precipitation and the high content of salts and alkali. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main limitations are the content of salts and alkali and the low average annual precipitation. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclass VIIw, nonirrigated, and in range site 27-5.

483—Orizaba loam, drained. This very deep, somewhat poorly drained soil is on lake plains and stream terraces. The drainage has been altered as a result of changes in the original course of streams or as a result of channel entrenchment. The soil formed in alluvial and lacustrine deposits derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly very pale brown, mottled silty clay loam stratified with loam and silt loam.

Included in this unit are about 5 percent salt- and alkali-affected Sagouspe soils in sand-filled river channels (range site 27-2) and 5 percent Isolde soils on stabilized sand dunes (range site 27-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Orizaba soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected. It is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for livestock grazing and irrigated cultivated crops. It is also used for homesite development.

The potential plant community on this unit is mainly Bailey greasewood, black greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly black greasewood, Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the content of salts and alkali in the soil. The suitability of this unit for rangeland seeding is very poor. The main limitations are the content of salts and alkali and the low average annual precipitation. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the content of salts and alkali. The content of salts and aklali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown.

The main limitation for construction of dwellings is the hazard of flooding during high-intensity storms of long duration. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow permeability.

This unit is limited for roads because of the high content of clay in the soil. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-24.

484—Orizaba silty clay loam. This very deep, somewhat poorly drained soil is on alluvial flats. It formed in alluvial and lacustrine material derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray silty clay loam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly light brownish gray, mottled silty clay loam stratified with loam and silt loam.

Included in this unit is about 10 percent Pizene soils on alluvial fans (range site 26-12).

Permeability of this Orizaba soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. This soil is moderately salt- and alkali-affected in the surface layer, and it is less salt- and alkali-affected below the surface layer.

This unit is used for irrigated cultivated crops, livestock grazing, and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, basin wildrye, basin big sagebrush, and creeping wildrye. The present vegetation in most areas is mainly black greasewood, seepweed, inland saltgrass, and fourwing saltbush. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this unit for rangeland seeding is very poor. The main limitations are the content of salts and alkali and the low average annual precipitation. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the content of salts and alkali and the seasonal high water table. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIIw, irrigated, and VIIs, nonirrigated. It is in range site 26-12.

486—Orizaba-Delp association. This map unit is on old lake plains with superimposed dunes and hummocks. Elevation is 4,300 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Orizaba loam, strongly saline-alkali, and 30 percent Delp sand. The Orizaba soil is on lake plains, and the Delp soil is on stabilized dunes on lake plains.

Included in this unit are about 5 percent Parran soils in shallow basins (range site 27-25) and 5 percent Lahontan soils on alluvial flats (range site 27-25). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Orizaba soil is very deep and somewhat poorly drained. It formed in alluvium derived dominantly from basic igneous and granitic rocks. Slope is 0 to 2 percent. Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 60 inches or more is dominantly very pale brown, mottled silty clay loam stratified with loam and silt loam.

Permeability of the Orizaba soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. The soil is strongly salt- and alkali-affected in the surface layer, and it is less salt- and alkali-affected below the surface layer.

The Delp soil is very deep and well drained. It formed in eolian sand derived dominantly from granitic rock. Slope is 2 to 15 percent. Typically, the surface layer is light gray sand about 5 inches thick. The subsoil is pale brown loamy sand and sandy loam about 14 inches thick. The substratum to a depth of 60 inches or more is light brownish gray to pale brown, stratified sand and fine sand.

Permeability of the Delp soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for wildlife habitat and livestock grazing.

The potential plant community on the Orizaba soil is mainly inland saltgrass, black greasewood, and alkali sacaton. The present vegetation in most areas is mainly black greasewood and inland saltgrass. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The water table provides supplemental moisture for plants. The suitability of this soil for rangeland seeding is very poor. The main limitations are the high content of salts and alkali and the low average annual precipitation. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

The potential plant community on the Delp soil is mainly Indian ricegrass, black greasewood, and hairy horsebrush. The present vegetation in most areas is mainly black greasewood and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer.

The Orizaba soil is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. The Delp soil is limited for roads because of slope. Cutting and filling can be reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled

and maintenance costs reduced by stabilizing areas that have been disturbed.

The Orizaba soil is in capability subclass VIIw, nonirrigated, and in range site 27-5. The Delp soil is in capability subclass VIIs, nonirrigated, and in range site 27-16.

491—Otomo gravelly sandy loam, 4 to 15 percent slopes. This very shallow, well drained soil is on alluvial fan remnants. It formed in alluvium derived from mixed rock sources. Elevation is 5,000 to 5,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light yellowish brown gravelly sandy loam about 4 inches thick. The upper 6 inches of the underlying material is very pale brown very gravelly sandy loam, the next 13 inches is a hardpan that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is extremely gravelly loamy sand that is cemented with silica and lime. Depth to the hardpan is 6 to 14 inches.

Included in this unit are about 6 percent Cleaver soils on alluvial fans (range site 27-18), 5 percent Malpais soils in drainageways and on inset alluvial fans (range site 27-18), and 4 percent Yerington soils in areas of eolian deposits (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Otomo soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, Bailey greasewood, and shadscale. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

This unit is limited for roads because of depth to the hardpan. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

501—Parran silty clay loam. This very deep, somewhat poorly drained soil is on lake plains. It formed in lacustrine sediment derived from mixed rock sources. Slope is 0 to 2 percent. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown silty clay loam about 3 inches thick. The upper 37 inches of the underlying material is dark grayish brown silty clay that is more than 2 percent salt, and the lower part to a depth of 60 inches or more is pale brown, mottled silty clay loam with thin lenses of loamy fine sand.

Included in this unit are about 10 percent Wabuska soils that are strongly saline and alkali and are on low lake terraces (range site 27-5) and 5 percent Isolde soils on stratified dunes and hummocks (range site 27-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Parran soil is very slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through March. Runoff is very slow to ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is strongly salt- and alkali-affected.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, shadscale, and alkali seepweed. The present vegetation in most areas is mainly iodinebush, seepweed, and black greasewood. The production of forage is limited by the low average annual precipitation and the high content of salts and alkali in the soil. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the content of salts and alkali in the soil.

This unit is limited for roads because of the hazard of frost heaving and the high content of clay in the soil. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIw, nonirrigated, and in range site 27-25.

511—Patna fine sand, 4 to 15 percent slopes. This very deep, somewhat excessively drained soil is on the leeward side of hills and occurs as small dunes. It formed in eolian sand derived from various kinds of rock. Elevation is 4,200 to 6,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown fine sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 16 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand.

Included in this unit are about 5 percent Theon soils on hillsides (range site 27-9) and 5 percent Malpais soils in drainageways and on associated alluvial fans (range

site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Nevada dalea, hairy horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

This unit is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-9.

512—Patna fine sand, 15 to 30 percent slopes. This very deep, somewhat excessively drained soil is on the leeward side of hills and occurs as small dunes. It formed in eolian sand derived from various kinds of rock. Elevation is 4,200 to 6,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray fine sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 16 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand and sand.

Included in this unit are about 5 percent Theon soils on hillsides (range site 27-9) and 5 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Nevada dalea, hairy horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

This unit is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIe, nonirrigated, and in range site 27-9.

514—Patna loamy sand, silty substratum, 0 to 2 percent slopes. This very deep, somewhat excessively drained soil is on old lake plains. It formed in eolian deposits derived from various kinds of rock and in by lacustrine sediment. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray loamy sand about 8 inches thick. The subsoil is pale brown sandy loam about 7 inches thick. The upper 28 inches of the substratum is light brownish gray and pale brown sand and loamy sand, and the lower part to a depth of 60 inches or more is gray silt loam that has iron oxide mottles.

Included in this unit are about 5 percent Isolde soils on stabilized dunes (range site 27-23) and 5 percent Hough soils in slightly higher lying areas (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patna soil is moderately rapid in the subsoil and moderate in the lower part of the substratum. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

Most areas of this unit are used for livestock grazing and homesite development. A few areas are used for irrigated cultivated crops.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread,

and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Nevada dalea, hairy horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the moderately rapid permeability and the moderate available water capacity. The rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Water should be applied in amounts sufficient to wet the root zone but in amounts small enough to minimize the leaching of plant nutrients. Because of the limited depth to sand in some areas, cuts required for leveling should be less than 3 inches deep.

This unit is well suited to the construction of dwellings.

The main limitations for septic tank absorption fields are the rapid movement of water in the upper part of the soil and the silty lacustrine sediment in the lower part of the soil. Care is needed to prevent a water table from perching above the lower part of the substratum.

Roads generally can easily be constructed and maintained on this unit; however, during prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

516—Patna sand, 0 to 4 percent slopes. This very deep, somewhat excessively drained soil is on lake plains. It formed in sandy lacustrine and eolian deposits derived dominantly from andesitic and granitic rock. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is brown sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is brown loamy sand.

Included in this unit are about 8 percent Isolde soils on stabilized dunes and hummocks (range site 27-23) and 7 percent Hough soils in slightly higher lying areas (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Nevada dalea, hairy horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Roads can easily be constructed and maintained on this unit. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-9.

517—Patna-Hough-Playas association. This map unit is on lake plains. Slope is 0 to 2 percent. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Patna loamy sand, 30 percent Hough sand, and 20 percent Playas. The Patna soil is on low, broad dunes, the Hough soil is on lake plains, and the Playas are in blowout areas that receive runoff water from surrounding soils.

Included in this unit are about 6 percent Rusty soils in slightly higher lying areas (range site 27-9) and 4 percent Isolde soils on stabilized dunes (range site 27-23). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Patna soil is very deep and somewhat excessively drained. It formed in sandy alluvial and eolian deposits derived from various kinds of rock. Typically, the surface layer is brown loamy sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand.

Permeability of the Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Hough soil is very deep and well drained. It formed in wind-worked lacustrine and alluvial sediment derived dominantly from intrusive and extrusive igneous rock. Typically, the surface layer is light brownish gray sand about 10 inches thick. The subsoil is brown sandy clay loam about 11 inches thick. The substratum to a depth of 60 inches or more is brown, stratified fine sand to coarse sand and has many iron oxide mottles.

Permeability of the Hough soil is moderate to a depth of 21 inches and very rapid below this depth. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

Playas consists of barren, nearly level areas that are slightly lower than surrounding areas. The surface layer is moderately fine textured or fine textured. Areas of Playas are subject to frequent, brief to long periods of ponding after heavy rains.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Patna soil is mainly Indian ricegrass, fourwing saltbush, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, dalea, hairy horsebrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the surface layer.

The potential plant community on the Hough soil is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly littleleaf horsebrush, Indian ricegrass, and Douglas rabbitbrush. The production of forage is limited by the low average annual precipitation and the texture of the surface layer. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclass VIIs, nonirrigated. The Patna soil is in range site 27-9, and the Hough soil is in range site 27-18.

518—Patna sandy loam, occasionally flooded, 0 to 2 percent slopes. This very deep, somewhat excessively drained soil is on alluvial terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray sandy loam about 3 inches thick. The subsoil is yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is pale brown and light gray gravelly coarse sand.

Included in this unit is about 10 percent Malpais soils in drainageways (range site 27-18).

Permeability of this Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional brief periods of flooding in May through August.

This unit is used for livestock grazing. It can be used for irrigated cultivated crops if it is protected from flooding.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Bailey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the occasional periods of flooding. It is difficult to establish and maintain structures that can protect the unit from flash flooding.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-9.

519—Patna loam, 0 to 2 percent slopes. This very deep, somewhat excessively drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray loam about 7 inches thick. The subsoil is yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is stratified, pale brown and light gray loamy sand and sand.

Included in this unit is about 10 percent Malpais soils in drainageways.

Permeability of this Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for irrigated cultivated crops and wildlife habitat.

This unit is well suited to irrigated cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. Because of the underlying sandy material, deep cuts should be avoided when leveling.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIs, irrigated, and VIIc, nonirrigated.

521—Pizene sandy loam, 0 to 4 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray sandy loam about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a depth of 60 inches or more is light brownish gray fine sandy loam.

Included in this unit are about 6 percent Patna soils on the upper part of alluvial fans bordering low hills (range site 27-9) and 4 percent Orizaba soils that are drained by channel entrenchment and are on toe slopes of alluvial fans (range site 27-24). Included areas make up about 10 percent of the total acreage.

Permeability of this Pizene soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subsoil.

This unit is used for irrigated cultivated crops, livestock grazing, and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood, basin big sagebrush, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitation is the content of salts and alkali in the subsoil. Excess salts in the soil can be flushed out by using heavy, periodic applications of water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIe, irrigated, and VIIs, nonirrigated. It is in range site 26-12.

522—Pizene-Orizaba complex. This map unit is on alluvial fans and alluvial flats. Slope is 0 to 2 percent. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Pizene sandy loam and 35 percent Orizaba silty clay loam. The Pizene soil is in higher lying areas on fans and terraces, and the Orizaba soil is on alluvial flats.

Included in this unit are about 10 percent Delp soils on stabilized low dunes and hummocks (range site 27-16) and 5 percent Parran soils in small shallow basins (range site 27-25). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Pizene soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is light brownish gray sandy loam about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a depth of 60 inches or more is light brownish gray fine sandy loam.

Permeability of the Pizene soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subsoil.

The Orizaba soil is very deep and somewhat poorly drained. It formed in alluvial and lacustrine material derived from various kinds of rock. Typically, the surface layer is grayish brown silty clay loam about 3 inches thick. The underlying material to a depth of 60 inches or more is very pale brown, mottled silty clay loam that has some strata of loam and silt loam.

Permeability of the Orizaba soil is moderately slow. Available water capacity is high. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from November through May. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. The soil is strongly salt- and alkali-affected to a depth of 36 inches, and it is slightly to moderately salt- and alkali-affected below this depth.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Pizene soil is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood and basin big sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Orizaba soil is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood and basin big sagebrush. The production of forage is limited by the content of salts and alkali in the soil and the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the content of salts and alkali in the soil and the low average annual precipitation.

Roads can easily be constructed and maintained on this Pizene soil. The Orizaba soil is limited for roads because of the potential for frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-12.

523—Pizene loam, 0 to 2 percent slopes. This very deep, well drained soil is on stream terraces. It formed in lacustrine sediment overlain by alluvium derived from

various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray loam about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a depth of 60 inches or more is light brownish gray fine sandy loam.

Included in this unit are about 6 percent Patna soils on the upper part of alluvial fans bordering low hills (range site 27-9) and 4 percent Orizaba soils that are drained by channel entrenchment and are on toe slopes of alluvial fans (range site 27-24). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Pizene soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow to ponded, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is slightly salt- and alkali-affected in the subsoil.

This unit is used for irrigated cultivated crops, livestock grazing, and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, basin wildrye, and basin big sagebrush. The present vegetation in most areas is mainly black greasewood and basin big sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitation is the content of salts and alkali in the subsoil. Excess salts in the soil can be flushed out by using heavy, periodic applications of water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIs, irrigated, and VIIs, nonirrigated. It is in range site 26-12.

524—Pizene loamy fine sand, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans and stream terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray loamy fine sand about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a depth of 60 inches or more is light brownish gray fine sandy loam.

Included in this unit are about 6 percent Patna soils on the upper part of alluvial fans (range site 27-9), 5 percent Isolde soils on stabilized dunes and hummocks (range site 27-23), and 4 percent Orizaba soils that are drained by channel entrenchment and are on toe slopes of alluvial fans (range site 27-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Pizene soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow or ponded, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. The soil is slightly salt- and alkali-affected in the subsoil.

This unit is used for irrigated cultivated crops, livestock grazing, and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, Indian ricegrass, and needleandthread. The present vegetation in most areas is mainly black greasewood and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitation is the content of salts and alkali in the subsoil. Excess salts in the soil can be flushed out by using heavy, periodic applications of water. Soil blowing can be reduced by returning crop residue to the soil and practicing minimum tillage.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIs, irrigated, and VIIs, nonirrigated. It is in range site 27-16.

531—Perazzo gravelly loam, 0 to 2 percent slopes. This very deep, well drained soil is on old alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray gravelly loam about 4 inches thick. The subsoil is brown very gravelly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is pale brown extremely gravelly loamy sand.

Included in this unit are about 8 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18), 4 percent Rawe soils on alluvial fan remnants (range site 27-18), and 3 percent Patna soils on stabilized low dunes and hummocks (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Perazzo soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated cultivated crops and homesite development.

The potential plant community on this unit is mainly shadscale, Indian ricegrass, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Indian ricegrass, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitation is the low available water capacity. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is the rapid permeability in the lower part of the soil. Special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-18.

532—Perazzo gravelly loam, 2 to 8 percent slopes. This very deep, well drained soil is on old alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,550 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer averages gravelly loam that is light brownish gray. It is about 4 inches thick. The subsoil averages very gravelly sandy clay loam that is brown. It is about 9 inches thick. The upper 8 inches of the substratum is pinkish gray extremely gravelly sandy loam, and the lower part to a depth of 60 or more inches is pale brown extremely gravelly loamy sand.

Included in this unit are about 8 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18), 4 percent Rawe soils on alluvial fan remnants (range site 27-18), and 3 percent Patna soils on stabilized low dunes and hummocks (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Perazzo soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated cultivated crops and homesite development.

The potential plant community on this unit is mainly shadscale, Bailey greasewood, Indian ricegrass, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Indian ricegrass, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated cultivated crops, the main limitations are slope and the low available water capacity. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs. Sprinkler irrigation is best suited to this unit because of the slope and the very gravelly material that would be exposed if cuts were made to level the soil for other methods of irrigation.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is the rapid permeability of the lower part of the soil. Special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIe, irrigated, and VIIs, nonirrigated. It is in range site 27-18.

534—Perazzo very gravelly sandy loam, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial fan remnants. It formed in alluvium derived from various kinds of rock. Elevation is 4,600 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 4 inches thick. The subsoil is brown very gravelly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is pale brown extremely gravelly loamy sand.

Included in this unit are about 8 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18), 4 percent Rawe soils on alluvial fan remnants (range site 27-18), and 3 percent Patna soils on stabilized low dunes and hummocks (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Perazzo soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly shadscale, Indian ricegrass, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Indian ricegrass, and Bailey

greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The main limitation of this unit for the construction of dwellings is slope. The main limitation for septic tank absorption fields is the rapid permeability of the lower part of the soil. The ground water moves laterally through the lower part of the soil.

Roads should be constructed in the less sloping areas of this unit.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

535—Perazzo very stony sandy loam, 4 to 8 percent slopes. This very deep, well drained soil is on old alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,550 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very stony sandy loam about 4 inches thick. The subsoil is brown very gravelly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is pale brown extremely gravelly loamy sand.

Included in this unit are about 10 percent Malpais soils on inset alluvial fans and in drainageways (range site 27-18) and 5 percent Rawe soils on alluvial fan remnants (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Perazzo soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly shadscale, Indian ricegrass, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Indian ricegrass, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is well suited to the construction of dwellings. The main limitation for septic tank absorption fields is the rapid permeability of the lower part of the soil. Special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

541—Uripnes-Chill-Rock outcrop association. This map unit is on hills and mountains. Slope is 4 to 50 percent. Elevation is 4,500 to 6,500 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 55 percent Uripnes very gravelly sandy loam that has slopes of 30 to 50 percent, 20 percent Chill gravelly sandy loam that has slopes of 4 to 15 percent, and 15 percent Rock outcrop. The Uripnes soil is on side slopes of hills and mountains of hills and mountains; the Chill soil is on broad tops, shoulders, and plateaus; and Rock outcrop is on rims.

Included in this unit are about 6 percent Isolde soils in pockets on the leeward side of hills and mountains (range site 27-23) and 4 percent Malpais soils on short alluvial fans and in drainageways (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Uripnes soil is very shallow and well drained. It formed in residuum and colluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown and brown very gravelly sandy loam about 9 inches thick. Below this to a depth of 30 inches is weathered granitic bedrock that can be dug with hand tools. Hard bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 3 to 14 inches.

Permeability of this Uripnes soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 3 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Chill soil is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is brown gravelly sandy clay loam about 4 inches thick. Weathered granitic bedrock is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of this Chill soil is moderately low. Available water capacity is very slow. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of granitic bedrock.

This unit is used for livestock grazing and wildlife habitat.

The potential and present plant community on the Uripnes soil is mainly desert needlegrass, littleleaf horsebrush, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and steepness of slope.

The potential plant community on the Chill soil is mainly desert needlegrass, Thurber needlegrass, and Wyoming big sagebrush. The present vegetation in most areas is mainly desert needlegrass and Wyoming big sagebrush. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The Uripnes soil is limited for roads because of steepness of slope. The weathered bedrock can be excavated with power equipment. Cutting and filling are reduced by building roads in the less sloping areas of the Chill soil. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Uripnes soil is in range site 27-17, and the Chill soil is in range site 26-11.

551—Rawe gravelly sandy loam, 4 to 15 percent slopes. This very deep, well drained soil is on old alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray gravelly sandy loam about 1 inch thick. The subsoil is brown gravelly clay about 9 inches thick. The substratum to a depth of 60 inches or more averages very gravelly sandy loam that is light brownish gray.

Included in this unit are about 6 percent Lox soils on fans in slightly lower lying areas (range site 27-24), 5 percent Patna soils on stabilized hummocks (range site 27-9), and 4 percent Perazzo soils on alluvial fan remnants (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Rawe soil is slow to a depth of 10 inches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly shadscale, Bailey greasewood, Indian ricegrass, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling are reduced by building roads in the less sloping areas of this unit.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

552—Rawe complex, 2 to 4 percent slopes. This map unit is on old alluvial fans. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 45 percent Rawe gravelly sandy loam and 40 percent Rawe loamy sand. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 6 percent Isolde soils on stabilized low dunes and hummocks (range site 27-23), 5 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-18), and 4 percent Patna soils on stabilized hummocks (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Rawe gravelly sandy loam is very deep and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light gray gravelly sandy loam about 1 inch thick. The subsoil is brown gravelly clay about 9 inches thick. The substratum to a depth of 60 inches or more is light brownish gray very gravelly sandy loam.

Permeability of the Rawe gravelly sandy loam is slow to a depth of 10 inches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Rawe loamy sand is very deep and well drained. It formed in mixed alluvium overlain by wind-deposited material derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray loamy sand about 12 inches thick. The subsoil is brown gravelly clay about 9 inches thick. The substratum to a depth of 60 inches or more is light brownish gray gravelly sandy loam.

Permeability of the Rawe loamy sand is slow to a depth of 21 inches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wildlife habitat.

The potential and present plant community on the Rawe gravelly sandy loam is mainly Indian ricegrass, Bailey greasewood, and shadscale. The potential plant community on the Rawe loamy sand is mainly Indian ricegrass, fourwing saltbush, and needleandthread. The present vegetation in most areas is mainly Indian ricegrass and shadscale. Livestock grazing should be managed to protect the soils from blowing and drifting

sand. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclass VIIs, nonirrigated. The Rawe gravelly sandy loam is in range site 27-18, and the Rawe loamy sand is in range site 27-9.

553—Rawe-Malpais association. This map unit is on gently sloping to strongly sloping dissected alluvial fans and in associated drainageways. Slope is 2 to 15 percent. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Rawe gravelly sandy loam and 25 percent Malpais gravelly sandy loam. The Rawe soil is on remnants of old alluvial fans, and the Malpais soil is in drainageways and on alluvial fan skirts.

Included in this unit are about 6 percent Perazzo soils on alluvial fans (range site 27-18), 5 percent Cleaver soils on alluvial fans (range site 27-18), and 4 percent Patna soils on stabilized low dunes and hummocks. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Rawe soil is very deep and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light gray gravelly sandy loam about 1 inch thick. The subsoil is brown gravelly clay about 9 inches thick. The substratum to a depth of 60 inches or more is light brownish gray very gravelly sandy loam.

Permeability of the Rawe soil is slow to a depth of 10 inches and moderately rapid below this depth. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Malpais soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is pale brown gravelly sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is brown to grayish brown extremely cobbly sandy loam and very gravelly sandy loam.

Permeability of the Malpais soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential and present plant community on this unit is mainly Indian ricegrass, Bailey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the Malpais soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

561—Rebel sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,700 to 5,200 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown sandy loam about 14 inches thick. The subsoil and substratum to a depth of 60 inches or more average sandy loam that is yellowish brown.

Included in this unit are about 6 percent Haybourne soils on the upper end of alluvial fans (range site 26-16) and 4 percent Hotsprings soils in narrow stringers throughout the unit (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Rebel soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing, wildlife habitat, and irrigated cultivated crops.

The potential plant community on this unit is mainly Wyoming big sagebrush, Thurber needlegrass, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, Anderson peachbrush, and Nevada ephedra. The production of forage is limited by the low average annual precipitation and the moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

This unit is well suited to irrigated cultivated crops. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The moderately rapid movement of water in the soil should be considered when selecting and designing irrigation systems.

If surface drainage and a stable base are provided, damage from frost heaving is minimized on roads on this unit.

This map unit is in capability subclasses IIc, irrigated, and VIc, nonirrigated. It is in range site 26-16.

571—Reno gravelly sandy loam, 2 to 4 percent slopes. This moderately deep, well drained soil is on old alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,300 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light gray gravelly sandy loam about 5 inches thick. The subsoil is dark yellowish brown gravelly clay about 22 inches thick. The next layer is a strongly silica- and lime-cemented hardpan about 14 inches thick. Below this to a depth of 60 inches or more is brown extremely gravelly loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Included in this unit are about 6 percent Fulstone soils on convex alluvial fans (range site 26-25), 6 percent Ackley soils on toe slopes of alluvial fans (range site 26-16), and 3 percent Veta soils in drainageways and on inset fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Reno soil is very slow. Available water capacity is low or moderate. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and homesite development.

The potential plant community on this unit is mainly low sagebrush, Thurber needlegrass, Sandberg bluegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The production of forage is limited by the low average annual precipitation, restricted available water capacity, and restricted rooting depth. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation, restricted available water capacity, and the thin surface layer.

The main limitation for construction of dwellings is the content of highly expansive clay. If buildings are constructed on this unit, properly designing foundations and footings and diverting runoff away from buildings help to prevent structural damage because of shrinking and swelling. Excavation for building sites is limited by the hardpan.

The main limitations for septic tank absorption fields are the hardpan, the very slow permeability above the hardpan, and rapid permeability below the hardpan. Use of sandy backfill for the trench and long absorption lines helps to compensate for the very slow permeability. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan. Heavy equipment is needed for excavation. Because the soil is rapidly permeable below the hardpan, special design may be needed to avoid polluting the ground water.

This unit is limited for roads because of the content of highly expansive clay that has low load-bearing capacity. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-25.

572—Reno cobbly sandy loam, 4 to 15 percent slopes. This moderately deep, well drained soil is on old alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray cobbly sandy loam about 5 inches thick. The subsoil is dark yellowish brown gravelly clay about 22 inches thick. The next layer is a silica- and lime-cemented hardpan about 14 inches thick. Below this to a depth of 60 inches or more is very gravelly loamy sand. Depth to the hardpan ranges from 20 to 40 inches.

Included in this unit are about 8 percent Fulstone soils on convex alluvial fans (range site 26-25), 4 percent Ackley soils on toe slopes of alluvial fans (range site 26-16), and 3 percent Veta soils in drainageways and on inset fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Reno soil is very slow. Available water capacity is low or moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and homesite development.

The potential plant community on this unit is mainly low sagebrush, Thurber needlegrass, Sandberg bluegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, restricted available water capacity, and restricted rooting depth. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation, restricted available water capacity, and the thin surface layer.

The main limitation for construction of dwellings is the content of highly expansive clay in the soil. If buildings are constructed on this unit, properly designing foundations and footings and diverting runoff away from buildings help to prevent structural damage because of shrinking and swelling. Excavation for building sites is limited by the hardpan.

The main limitations for septic tank absorption fields are the hardpan, the very slow permeability above the hardpan, and rapid permeability below the hardpan. Use of sandy backfill for the trench and long absorption lines helps to compensate for the very slow permeability. The operation of septic tank absorption fields can be improved by placing the absorption lines below the hardpan. Heavy equipment is needed for excavation. Because the soil is rapidly permeable below the hardpan, special design may be needed to avoid polluting the ground water.

This unit is limited for roads because of the content of highly expansive clay that has low load-bearing capacity. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-25.

581—Risue extremely stony loam, 8 to 15 percent slopes. This shallow, well drained soil is on very old dissected alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

Typically, the surface layer is light gray extremely stony loam about 1 inch thick. The subsoil averages clay that is dark yellowish brown. It is about 15 inches thick. The next layer is an indurated, silica- and lime-cemented hardpan about 17 inches thick. Below this to a depth of 60 inches or more is stratified, weakly to strongly silica- and lime-cemented very gravelly sandy loam. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 8 percent Cleaver soils on alluvial fans (range site 27-18), 3 percent Perazzo soils on inset alluvial fans (range site 27-18), 2 percent Malpais soils in drainageways and on inset fans (range site 27-18), and 2 percent Weena soils on eroded side slopes (range site 27-26). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Risue soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bud sagebrush, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, bud sagebrush, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation, the thin and extremely stony surface layer, and the clay subsoil. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

This unit is limited for roads because of the shallow depth to the hardpan and the content of highly expansive clay in the soil. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

582—Risue gravelly loam, 0 to 8 percent slopes. This shallow, well drained soil is on very old dissected alluvial fans. It formed in alluvium derived dominantly from basic igneous rock. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

Typically, the surface layer is light gray gravelly loam about 1 inch thick. The subsoil is dark yellowish brown clay about 15 inches thick. The next layer is a silica- and lime-cemented hardpan about 17 inches thick. Below this to a depth of 60 inches or more is stratified, weakly to strongly silica- and lime-cemented very gravelly sandy loam. Depth to the hardpan ranges from 10 to 20 inches.

Included in this unit are about 10 percent Cleaver soils on alluvial fans (range site 27-18), 3 percent Perazzo soils on inset alluvial fans (range site 27-18), and 2 percent Malpais soils in drainageways and on inset fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Risue soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bud sagebrush, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, bud sagebrush, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation, the thin surface layer, and the clay subsoil.

This unit is limited for roads because of the shallow depth to the hardpan and content of highly expansive clay in the soil. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

591—Rose Creek loam. This very deep, poorly drained soil is on narrow flood plains. It formed in loamy and sandy alluvium derived from various kinds of rock. Slope ranges from 0 to 2 percent but is dominantly less than 0.5 percent. Elevation is 4,000 to 4,500 feet. The average annual precipitation is about 7 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown loam about 18 inches thick. The underlying material to a depth of 60 inches or more is stratified, light gray to pale brown silt loam to gravelly loamy sand. In some areas the surface layer is gravelly or is slightly saline and alkali.

Included in this unit are about 8 percent Fallon soils adjacent to rivers (range site 27-2), 5 percent Dithod soils on stream terraces (range site 27-2), and 2 percent Fernley soils in sand-filled stream channels (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Rose Creek soil is moderately rapid. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.0 feet from December through July. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to common, brief to long periods of flooding from February through June.

Most areas of this unit are used for hay and native pasture. A few areas are used for livestock grazing.

The potential plant community on this unit is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly creeping wildrye, willow, Woods rose, and sedges. The production of forage is limited by the the drop in the level of the water table late in summer. The suitability of this unit for rangeland seeding is fair. The main limitation is wetness, which restricts the use of machinery in spring. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

If this unit is used for hay and pasture, the main limitations are common periods of flooding and wetness. Wetness limits the choice of plants and the period of cutting or grazing and increases the risk of winterkill. Irrigation water can be applied by the border, corrugation, and sprinkler methods. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table.

This unit is limited for roads because of common periods of flooding and a severe hazard of frost heaving. Flooding can be controlled only by use of major flood control structures. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IVw, irrigated, and Vw, nonirrigated. It is in range site 27-4.

601—Rusty sand, 0 to 2 percent slopes. This very deep, well drained soil is on lake plains. It formed in wind-worked lacustrine sediment derived dominantly from mixed igneous rock. Elevation is 4,150 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer averages sand that is light gray. It is about 9 inches thick. The subsoil is brown sandy clay loam about 13 inches thick. The substratum to a depth of 60 inches or more is very pale brown, stratified sand to silt loam.

Included in this unit are about 8 percent Patna soils in slightly elevated areas of eolian deposits (range site 27-9), 5 percent Isolde soils on stabilized dunes and hummocks (range site 27-23), and 2 percent small, shallow Playas. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Rusty soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is slightly salt- and alkali-affected below a depth of 9 inches.

This unit is used for livestock grazing and homesite development. It can be used for irrigated cultivated crops if water is made available.

The potential plant community on this unit is mainly fourwing saltbush, Bailey greasewood, Indian ricegrass, and needleandthread. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and littleleaf horsebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

This unit is well suited to the construction of dwellings.

If this unit is used for septic tank absorption fields, the limitation of moderately slow permeability can be overcome by increasing the size of the absorption field.

Roads can easily be constructed and maintained on this unit; however, unless surface drainage is provided, excess water accumulates and roads are damaged by frost heaving.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

603—Rusty-Isolde complex, 0 to 15 percent slopes. This map unit is on wind-worked old lake plains. Elevation is 4,150 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is about 55 percent Rusty sand that has slopes of 0 to 2 percent and 30 percent Isolde fine sand that has slopes of 0 to 15 percent. The Rusty soil is in nearly level areas, and the Isolde soil is on dunes and hummocks. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Patna soils in slightly elevated areas of eolian deposits (range site 27-9) and 5 percent small, shallow Playas. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Rusty soil is very deep and well drained. It formed in lacustrine sediment derived dominantly from mixed igneous rock. Typically, the surface layer is light gray sand about 9 inches thick. The subsoil is brown sandy clay loam about 13 inches thick. The substratum to a depth of 60 inches or more is pale brown, stratified sand to silt loam.

Permeability of this Rusty soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is slightly salt- and alkali-affected below a depth of 9 inches.

The Isolde soil is very deep and excessively drained. It formed in eolian deposits derived from various kinds of rock. Typically, the surface layer is pale brown fine sand about 7 inches thick. The underlying material to a depth of 60 inches or more is pale brown fine sand.

Permeability of this Isolde soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing.

The potential plant community on the Rusty soil is mainly Indian ricegrass, Bailey greasewood, fourwing saltbush, and needleandthread. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer.

The potential plant community on the Isolde soil is mainly hairy horsebrush, Indian ricegrass, fourwing saltbush, and needleandthread. The present vegetation in most areas is mainly hairy horsebrush, dalea, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

Roads can easily be constructed and maintained on this unit. Unless surface drainage is provided, however, excess water accumulates and roads on the Rusty soil are damaged by frost heaving. When the Isolde soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing. Erosion is minimized and maintenance cost reduced by providing roads with adequate surface drainage, a stable base, and a durable wearing surface.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. The Rusty soil is in range site 27-9, and the Isolde soil is in range site 27-23.

604—Rusty-Playas complex, 0 to 2 percent slopes. This map unit is on lake plains. Elevation is 4,150 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is about 55 percent Rusty sand that has slopes of 0 to 2 percent and 30 percent Playas. The Rusty soil is on the main part of lake plains, and the Playas are in slightly depressional, blowout areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Patna soils in slightly elevated areas of eolian deposits (range site 27-9) and 5 percent Isolde soils on stabilized dunes, mostly on the leeward side of the Playas (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Rusty soil is very deep and well drained. It formed in wind-worked lacustrine sediment derived dominantly from mixed igneous rock. Typically, the surface layer is light gray sand about 9 inches thick. The subsoil is brown sandy clay loam about 13 inches thick. The substratum to a depth of 60 inches or more is pale brown, stratified sand to silt loam.

Permeability of this Rusty soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is high. This soil is slightly salt- and alkali-affected below a depth of 9 inches.

Playas consists of barren, nearly level areas that are somewhat lower lying than surrounding areas. The surface layer is moderately fine textured or fine textured. Areas of Playas are subject to frequent, brief to long periods of ponding after heavy rains.

This unit is used for livestock grazing and homesite development.

The potential plant community on the Rusty soil is mainly Bailey greasewood, fourwing saltbush, Indian ricegrass, and needleandthread. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and littleleaf horsebrush. The production of forage is

limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect this soil from blowing and drifting sand.

The main limitation for construction of dwellings is the frequent ponding in areas of Playas. Buildings should be located above the expected flood level.

If the Rusty soil is used for septic tank absorption fields, the limitation of moderately slow permeability can be overcome by increasing the size of the absorption field.

This unit is limited for roads because of the frequent ponding in areas of Playas. Roads and streets should be located above the expected flood level. Unless surface drainage is provided, excess water accumulates and roads on the Rusty soil are damaged by frost heaving.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. The Rusty soil is in range site 27-9.

611—Sagouspe sandy loam. This very deep, somewhat poorly drained soil is in filled stream channels and oxbows on flood plains. It formed in sandy alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brown sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray sand and loamy sand and has strata of sandy loam to silt loam.

Included in this unit are about 5 percent Dia soils on stream terraces, 5 percent Dithod soils on flood plains, and 5 percent Fernley soils in sand-filled channels. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Sagouspe soil is rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3.0 to 3.5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated cultivated crops.

If this unit is used for irrigated cultivated crops, rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprinkler irrigation is the most suitable method of applying water. If furrow irrigation is used, water should be applied at short intervals and runs should be short. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. It is difficult to provide deep drainage of this soil because of its low position and the lack of suitable grade to an outlet.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Flooding can be controlled only by use of major flood control structures.

This map unit is in capability subclasses IIIw, irrigated, and VIw, nonirrigated.

612—Sagouspe sandy loam, saline-alkali. This very deep, somewhat poorly drained soil is in filled stream channels and oxbows on flood plains. It formed in sandy alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown to light brownish gray sand and loamy sand and has strata of sandy loam to silt loam.

Included in this unit are about 10 percent Wabuska soils on low stream terraces and 5 percent Orizaba soils on low stream terraces and lake terraces. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Sagouspe soil is rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 3 to 5 feet from February through August. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected to a depth of 8 inches. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for irrigated pasture.

The concentration of salts and alkali in the surface layer limits the production of plants suitable for hay and pasture. Leaching the salts from the surface layer is limited by the high water table. Drainage and proper irrigation water management reduce the concentration of salts. Salt-tolerant species are most suitable for planting. The rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprinkler irrigation is the most suitable method of applying water. Irrigation water must be carefully applied to avoid raising the water table and increasing the concentration of salts and alkali in the soil. It is difficult to provide deep drainage of this soil because of its low position and the lack of adequate grade to an outlet.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this

unit. Flooding can be controlled only by use of major flood control structures.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated.

613—Sagouspe loam, wet. This very deep, somewhat poorly drained soil is in depressional areas on flood plains. It formed in sandy alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray loam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown to light brownish gray sand and loamy sand and has strata of sandy loam to silt loam.

Included in this unit are about 10 percent Dia soils, wet, on low stream terraces (range site 27-4) and 5 percent Dithod soils, wet, on low stream terraces (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Sagouspe soil is rapid. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.5 to 3.5 feet from March through June. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, long periods of flooding in April through June, and it is subject to ponding as a result of irrigation runoff from higher lying areas.

This unit is used for livestock grazing and wildlife habitat. It can be used for irrigated crops if an adequate drainage system is installed.

The potential plant community on this unit is mainly rushes, sedges, tufted hairgrass, and Nevada bluegrass. The present vegetation in most areas is mainly rushes, rubber rabbitbrush, sedges, and inland saltgrass. The production of forage is limited by the drop in the level of the water table late in summer. The suitability of this unit for rangeland seeding is fair. The main limitations are the moderate available water capacity of the surface layer, wet soil conditions in spring, and dry soil conditions in fall. Plants that tolerate wetness should be seeded. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is limited for roads because of occasional periods of flooding and the severe hazard of frost heaving. Flooding can be controlled only by use of major flood control structures. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIIw, irrigated, and VIIw, nonirrigated. It is in range site 27-4.

621—Saralegui loamy sand, 0 to 4 percent slopes. This very deep, well drained soil is on lake terraces and alluvial fans. It formed in sandy alluvium over lacustrine sediment derived dominantly from granitic rock. Elevation is 4,300 to 4,900 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown and brown loamy sand about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 34 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown sand.

Included in this unit are about 7 percent Wedertz soils intermingled throughout the unit (range site 26-16), 5 percent Wellington soils on alluvial fan remnants (range site 26-16), and 3 percent Obanion soils in depressional areas (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

Most areas of this unit are used for irrigated crops and livestock grazing. A few areas are used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, Anderson peachbrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Seedbed preparation should be on the contour or across the slope where practical.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are the hazard of soil blowing and moderate available water capacity. Soil blowing can be controlled by keeping the soil rough and cloddy when it is not protected by vegetation. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. For the efficient application and removal of irrigation water, leveling is needed in sloping areas.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is poor filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

623—Saralegui loamy sand, 4 to 8 percent slopes. This very deep, well drained soil is on alluvial fans and lake terraces. It formed in alluvial and lacustrine material derived dominantly from granitic rock. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown and grayish brown loamy sand about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 34 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown loamy sand and sand.

Included in this unit are about 5 percent Hotsprings soils on alluvial fans (range site 26-16) and 5 percent Haybourne soils on the lower part of alluvial fans (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for irrigated crops and livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, Anderson peachbrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are slope, moderate available water capacity, and the hazard of soil blowing. Soil blowing can be controlled by keeping the soil rough and cloddy when it is not protected by vegetation. Sprinkler irrigation is the most suitable method of applying water.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is the poor filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses IIIe, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

625—Saralegui sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans and lake terraces. It formed in alluvial and lacustrine material derived dominantly from granitic rock. Elevation is 4,500 to 5,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown sandy loam about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown loamy sand and sand.

Included in this unit are about 6 percent Wedertz soils on alluvial fans (range site 26-16) and 4 percent Wellington soils on alluvial fan remnants (range site 26-16). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Most areas of this unit are used for irrigated crops and livestock grazing. A few areas are used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, Anderson peachbrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitation is the moderate available water capacity. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. For the efficient application and removal of irrigation water, leveling is needed in sloping areas.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is the poor filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

626—Saralegui loamy sand, undulating. This very deep, well drained soil is on old lake terraces. It formed in sandy alluvium over lacustrine material derived dominantly from granitic rock. Slope is 2 to 8 percent. Elevation is 4,600 to 5,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is grayish brown and brown loamy sand about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown sand and loamy sand.

Included in this unit are about 6 percent Wedertz soils on alluvial fans (range site 26-16), 5 percent Wellington soils on alluvial fan remnants (range site 26-16), and 4 percent salt- and alkali-affected soils on lower terrace margins (range site 27-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of the Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing. It can be used for irrigated crops if water for irrigation is made available.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, Anderson peachbrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

627—Saralegui Variant loamy sand. This very deep, well drained soil is on lake terraces and alluvial fans. It formed in sandy alluvium over stratified, moderately fine textured lacustrine sediment derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,300 to 4,900 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown loamy sand about 4 inches thick. The subsurface layer is light gray sandy loam about 6 inches thick. The subsoil is yellowish brown or pale brown sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is stratified, light gray to yellowish brown silty clay loam to loamy sand.

Included in this unit are about 7 percent Wedertz soils intermingled throughout the unit (range site 26-16), 5 percent Wellington soils intermingled throughout the unit (range site 26-16), and 3 percent Obanion soils on toe slopes of alluvial fans (range site 27-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Saralegui Variant soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

Most areas of this unit are used for irrigated crops and livestock grazing. A few areas are used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, rubber rabbitbrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitation is the hazard of soil blowing. Soil blowing can be controlled by keeping the soil rough and cloddy when it is not protected by vegetation. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is the moderately slow permeability. Use of sandy backfill for the trench and long absorption lines helps to compensate for this limitation.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

631—Singatse very gravelly sandy loam, 8 to 15 percent slopes. This very shallow, somewhat excessively drained soil is on hillsides and mountains. It formed in residuum and colluvium derived dominantly from andesite and granitic rock. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. Weathered bedrock is at a depth of about 6 inches. Hard bedrock is at a depth of 12 inches. Depth to weathered bedrock ranges from 4 to 10 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Included in this unit are about 10 percent Theon soils on rounded hilltops and stable side slopes (range site 27-19), 3 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-18), and 2 percent Yerington soils on the leeward side of hills that receive deposits of sandy eolian material (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Singatse soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly shadscale, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly Bailey greasewood, shadscale, bottlebrush squirreltail, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity.

This unit is limited for roads because of shallow depth to bedrock. Roads should be designed to minimize cuts.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-27.

632—Singatse-Rock outcrop complex, 30 to 75 percent slopes. This map unit is on hills and mountains. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 70 percent Singatse very gravelly sandy loam, 30 to 75 percent slopes, and 15 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Theon soils on rounded hilltops and stable side slopes (range site 27-19), 5 percent Malpais soils in drainageways (range site 27-18), and 2 percent Yerington soils on the leeward side of hills that receive deposits of sandy eolian material (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Singatse soil is very shallow and somewhat excessively drained. It formed in residuum and colluvium derived dominantly from andesitic and granitic rock. Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. Weathered bedrock is at a depth of 6 inches. Hard bedrock is at a depth of 12 inches. Depth to weathered bedrock ranges from 4 to 10 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of this Singatse soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of andesitic or granitic bedrock.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Singatse soil is shadscale, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly shadscale, bottlebrush squirreltail, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, the very low available water capacity, and slope.

This unit is limited for roads because of the numerous areas of Rock outcrop and the shallow depth to bedrock and slope of the Singatze soil. Roads should be designed to minimize cuts because of the depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Singatse soil is in range site 27-27.

633—Singatse-Theon association. This map unit is on hills and mountains. Slope is 30 to 75 percent. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Singatse very gravelly loam and 35 percent Theon very gravelly loam. The Singatse soil is on the less stable side slopes, and the Theon soil is on the more rounded, stable side slopes.

Included in this unit are about 6 percent Rock outcrop on ridges, 5 percent Malpais soils in drainageways (range site 27-18), and 4 percent Yerington soils on the leeward side of hills that receive deposits of sandy eolian material (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Singatse soil is very shallow and somewhat excessively drained. It formed in residuum and colluvium derived dominantly from andesitic and granitic rock. Typically, the surface layer is light brownish gray very gravelly loam about 6 inches thick. Weathered bedrock is at a depth of 6 inches. Hard bedrock is at a depth of 12 inches. Depth to weathered bedrock ranges from 4 to 10 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Singatse soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Theon soil is shallow and very shallow and is well drained. It formed in residuum derived dominantly from volcanic rock. Typically, the surface layer is pale brown very gravelly loam about 2 inches thick. The subsoil is dark brown very gravelly loam and very gravelly clay loam about 9 inches thick. Soft, weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon soil is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Singatse soil is mainly shadscale, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly shadscale, bottlebrush squirreltail, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

The potential and present plant community on the Theon soil is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

Slope limits access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of slope and shallow depth to bedrock. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Singatse soil is in capability subclass VIIs, nonirrigated, and in range site 27-27. The Theon soil is in capability subclass VIIe, nonirrigated, and in range site 27-19.

641—Tocan sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans and terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown sandy loam about 6 inches thick. The subsoil averages sandy clay loam that is yellowish brown. It is about 9 inches thick. The substratum to a depth of 60 inches or more is pale brown, stratified sandy loam to very gravelly loamy sand. It is 30 to 50 percent silica and lime nodules in the upper part.

Included in this unit are about 9 percent Patna soils on eolian deposits (range site 27-9) and 6 percent Yerington soils on wind-worked alluvial fans and stabilized hummocks and low dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Tocan soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated crops.

The potential plant community on this unit is mainly Bailey greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitation is the moderate available water capacity. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. For the efficient application and removal of irrigation water, leveling is needed in sloping areas.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIc, irrigated, and VIIc, nonirrigated. It is in range site 27-18.

642—Tocan sandy loam, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans and terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown sandy loam about 6 inches thick. The subsoil is yellowish brown sandy clay loam about 9 inches thick. The substratum to a depth of 60 inches or more is stratified sandy loam to very gravelly sand. It is 30 to 50 percent silica and lime nodules in the upper part.

Included in this unit are about 9 percent Patna soils on eolian deposits (range site 27-9) and 6 percent Yerington soils on wind-worked alluvial fans and stabilized hummocks and low dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Tocan soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated crops.

The potential plant community on this unit is mainly Bailey greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly shadscale, bud sagebrush, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are slope and the moderate available water capacity. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Because of the limited depth to the substratum, cuts required for leveling should be less than 6 inches deep.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIe, irrigated, and VIIc, nonirrigated. It is in range site 27-18.

643—Tocan gravelly sandy loam, 4 to 8 percent slopes. This very deep, well drained soil is on alluvial fans and terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown gravelly sandy loam about 6 inches thick. The subsoil is yellowish brown sandy clay loam about 9 inches thick. The substratum to a depth of 60 inches or more is stratified sandy loam to very gravelly sand. It is 30 to 50 percent silica and lime nodules in the upper part.

Included in this unit are about 9 percent Patna soils on eolian deposits (range site 27-9) and 6 percent Yerington soils on wind-worked alluvial fans and stabilized hummocks and low dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Tocan soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated crops.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, spiny hopsage, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are slope and the moderate available water capacity. Sprinkler irrigation is the most suitable method of applying water. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIe, irrigated, and VIIc, nonirrigated. It is in range site 27-18.

644—Tocan-Yerington complex, 0 to 4 percent slopes. This map unit is on wind-worked alluvial fans and alluvial flats. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Tocan sandy loam and 40 percent Yerington loamy fine sand. The Tocan soil is on alluvial fans, and the Yerington soil is on alluvial fans and alluvial flats. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Patna soils on eolian deposits (range site 27-9). The percentage varies from one area to another.

The Tocan soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is pale brown sandy loam about 8 inches thick. The subsoil is yellowish brown sandy clay loam about 9 inches thick. The substratum to a depth of 60 inches or more is stratified sandy loam to very gravelly sand.

Permeability of the Tocan soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Yerington soil is very deep and well drained. It formed in eolian deposits derived from various kinds of rock. Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is stratified, pale brown loamy sand and sandy loam.

Permeability of the Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing. It is also used for irrigated crops.

The potential plant community on the Tocan soil is mainly Bailey greasewood, Indian ricegrass, and shadscale. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Yerington soil is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly low rabbitbrush, Indian ricegrass, Bailey greasewood, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are the moderate available water capacity, slope, and the rapid permeability of the Yerington soil. Sprinkler irrigation is the most suitable method of applying water. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclass IIe, irrigated, and VIIc, nonirrigated. The Tocan soil is in range site 27-18, and the Yerington soil is in range site 27-9.

651—Theon very gravelly sandy loam, 8 to 30 percent slopes. This shallow and very shallow, well drained soil is on hills and low mountains. It formed in residuum derived dominantly from andesite and rhyolite. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown very gravelly sandy loam about 2 inches thick. The subsoil is brown and reddish brown very gravelly clay loam and very gravelly loam about 9 inches thick. Weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Included in this unit are about 5 percent Rock outcrop on ridges and steep side slopes, 5 percent Singatse soils on steep south-facing side slopes (range site 27-27), and 5 percent Olac soils on north-facing side slopes (range site 26-25). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Theon soil is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing.

The potential plant community on this unit is mainly shadscale, Indian ricegrass, desert needlegrass, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity.

This unit is limited for roads because of the shallow depth to bedrock and slope in some areas. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-19.

652—Theon-Olac association. This map unit is on hills and low mountains. Slope is 30 to 75 percent. Elevation is 4,200 to 6,500 feet. The average annual

precipitation is about 6 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Theon very gravelly loam, 30 to 50 percent slopes; 25 percent Theon very stony loam, 50 to 75 percent slopes; and 20 percent Olac very stony loam, 30 to 75 percent slopes. The Theon very gravelly loam is on the upper and lower mountainsides, the Theon very stony loam is on mid slopes of mountains, and the Olac soil is on north-facing side slopes.

Included in this unit are about 5 percent Singatse soils on steep south-facing side slopes (range site 27-27), 5 percent Old Camp soils on concave, north-facing side slopes (range site 26-22), and 5 percent Rock outcrop on ridges and steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Theon very gravelly loam is shallow and very shallow and is well drained. It formed in residuum derived dominantly from andesite and rhyolite. Typically, the surface layer is pale brown very gravelly loam about 2 inches thick. The subsoil is brown and reddish brown very gravelly clay loam about 9 inches thick. Weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon very gravelly loam is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Theon very stony loam is shallow and very shallow and is well drained. It formed in residuum derived dominantly from andesite and rhyolite. Typically, the surface layer is pale brown very stony loam about 2 inches thick. The subsoil is brown and reddish brown very gravelly clay loam and very gravelly loam about 9 inches thick. Weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon very stony loam is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Olac soil is very shallow and well drained. It formed in residuum derived dominantly from igneous rock. Typically, the surface layer is light brownish gray very stony loam about 4 inches thick. The subsoil is brown extremely gravelly clay loam about 8 inches thick. Hard bedrock is at a depth of 12 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Theon very gravelly loam is mainly galleta, Indian ricegrass, desert needlegrass, and shadscale. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

The potential plant community on the Theon very stony loam is mainly desert needlegrass, Indian ricegrass, and littleleaf horsebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Olac soil is mainly low sagebrush, Thurber needlegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope.

Slope limits access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of shallow depth to bedrock and slope. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Theon very gravelly loam is in range site 27-19, the Theon very stony loam is in range site 27-17, and the Olac soil is in range site 26-25.

653—Theon-Lapon-Olac association. This map unit is on hills and low mountains. Slope is 30 to 75 percent. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 45 percent Theon very gravelly loam, 30 to 75 percent slopes; 20 percent Lapon extremely stony loam, 30 to 50 percent slopes; and 20 percent Olac very stony loam, 30 to 75 percent slopes. The Theon soil is on the sides of mountains and hills, the Lapon soil is on the upper side slopes and rounded tops of hills and mountains, and the Olac soil is on concave, north-facing side slopes.

Included in this unit are about 8 percent Singatse soils on steep, south-facing side slopes (range site 27-27), 4 percent Malpais soils in narrow drainageways (range site 27-18), and 3 percent Patna soils in pockets of wind-deposited sand (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Theon soil is shallow and very shallow and is well drained. It formed in residuum derived dominantly from igneous rock. Typically, the surface layer is pale brown very gravelly loam about 2 inches thick. The subsoil is brown and reddish brown very gravelly clay loam and very gravelly loam about 9 inches thick. Weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Lapon soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray extremely stony loam about 6 inches thick. The subsoil is brown very gravelly clay loam about 8 inches thick. The next layer is a hardpan that is cemented with silica and lime and is about 26 inches thick. Hard bedrock is at a depth of 40 inches. Depth to the cemented hardpan ranges from 8 to 14 inches. Depth to hard bedrock ranges from 15 to 40 inches.

Permeability of the Lapon soil is slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Olac soil is very shallow and well drained. It formed in residuum derived dominantly from igneous rock. Typically, the surface layer is light brownish gray very stony loam about 4 inches thick. The subsoil is brown extremely gravelly clay loam about 8 inches thick. Hard bedrock is at a depth of 12 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Theon soil is mainly shadscale, Bailey greasewood, desert needlegrass, and galleta. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

The potential plant community on the Lapon soil is mainly pine bluegrass, Thurber needlegrass, and low sagebrush. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope.

The potential plant community on the Olac soil is mainly low sagebrush, Thurber needlegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope.

Slope limits access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of shallow depth to bedrock, shallow depth to a hardpan, and slope. Roads should be designed to minimize cuts because of the limited depth to bedrock or hardpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Theon soil is in capability subclass VIIe, nonirrigated, and in range site 27-19. The Lapon soil is in capability subclass VIIe, nonirrigated, and in range site 27-20. The Olac soil is in capability subclass VIIs, nonirrigated, and in range site 26-25.

654—Theon-Rock outcrop-Old Camp complex, 50 to 75 percent slopes. This map unit is on hills and mountains. Elevation is 4,200 to 6,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 40 percent Theon very stony loam, 50 to 75 percent slopes; 30 percent Rock outcrop; and 15 percent Old Camp very stony loam, 50 to 75 percent slopes. The Theon soil is on hillsides and mountainsides, the Old Camp soil is on north-facing side slopes, and the Rock outcrop is mainly on ridges and in extremely steep areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Singatse soils on very steep, south-facing side slopes (range site 27-27), 5 percent Olac soils on north-facing, convex side slopes (range site 26-25), and 5 percent Rubble land, mostly below the areas of Rock outcrop. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Theon soil is shallow and very shallow and is well drained. It formed in residuum derived dominantly from andesite and rhyolite. Typically, the surface layer is pale brown very stony loam about 2 inches thick. The subsoil is brown and reddish brown very gravelly loam and very gravelly clay loam about 9 inches thick. Weathered bedrock is at a depth of 11 inches. Hard bedrock is at a depth of 16 inches. Depth to weathered bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon soil is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of bedrock.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very stony loam about 4 inches thick. The subsoil is pale brown very cobbly clay loam about 10 inches thick. Lime-coated hard andesite is at a depth of 14 inches. Depth to andesite ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Theon soil is mainly desert needlegrass, Indian ricegrass, and littleleaf horsebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and desert needlegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and slope.

The potential plant community on the Old Camp soil is mainly desert needlegrass, Thurber needlegrass, and Wyoming big sagebrush. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and slope.

Slope limits access by livestock and results in overgrazing of the less sloping areas. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of the numerous areas of Rock outcrop, shallow depth to bedrock, slope, and stones. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles create road hazards and increase maintenance costs.

The Theon soil is in capability subclass VIIs, nonirrigated, and in range site 27-17. The Old Camp soil is in capability subclass VIIe, nonirrigated, and in range site 26-22.

655—Theon-Yerington association. This map unit is on low foothills and associated alluvial fans. Slope is 4 to 15 percent. Elevation is 4,300 to 5,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Theon gravelly loamy fine sand, 8 to 15 percent slopes, and 25 percent Yerington gravelly loamy fine sand, 4 to 8 percent slopes. The Theon soil is on low hills, and the Yerington soil is on wind-worked alluvial fans.

Included in this unit are about 10 percent Patna soils on the leeward side of hills (range site 27-9) and 5 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Theon soil is shallow and very shallow and is well drained. It formed in residuum derived dominantly from igneous rock and is overlain by sandy material. Typically, the surface layer is pale brown gravelly loamy fine sand about 10 inches thick. The subsoil is reddish brown very gravelly clay loam about 4 inches thick. Weathered bedrock is at a depth of 14 inches. Depth to weathered

bedrock ranges from 8 to 14 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Theon soil is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Yerington soil is very deep and well drained. It formed in wind-worked alluvium derived from various kinds of rock. Typically, the surface layer is pale brown gravelly loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy fine sand and sandy loam and has as much as 15 percent gravel.

Permeability of the Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat and homesite development.

The potential plant community on the Theon soil is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, Douglas rabbitbrush, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity.

The potential plant community on the Yerington soil is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass, dalea, and Douglas rabbitbrush. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the moderate available water capacity of the surface layer.

The main limitation for construction of dwellings on the Theon soil is shallow depth to bedrock. Heavy equipment is needed for excavation. The Yerington soil is well suited to the construction of dwellings.

The main limitation of the Theon soil for septic tank absorption fields is shallow depth to bedrock. Absorption fields should be designed to compensate for this limitation. The main limitation of the Yerington soil for septic tank absorption fields is inadequate filtration. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

The Theon soil is limited for roads because of shallow depth to bedrock. Deep cuts should be avoided. Roads can easily be constructed and maintained on the Yerington soil.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-9.

661—Isolde fine sand, 0 to 15 percent slopes. This very deep, excessively drained soil is on dunes and the leeward side of hills. It formed in eolian arkosic sand derived from various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown fine sand about 7 inches thick. The underlying material to a depth of 60 inches or more is pale brown sand.

Included in this unit are about 10 percent Patna soils in areas between dunes and hummocks (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Isolde soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly hairy horsebrush, fourwing saltbush, needleandthread, and Indian ricegrass. The present vegetation in most areas is mainly hairy horsebrush, fourwing saltbush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the surface layer. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Roads generally can easily be constructed and maintained on this unit. During prolonged dry periods, however, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-23.

662—Isolde-Patna complex, 0 to 15 percent slopes. This map unit is on sand dunes and lake plains. Elevation is 4,000 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Isolde fine sand, 0 to 15 percent slopes, and 40 percent Patna fine sand, 4 to 15 percent slopes. The Isolde soil is on stabilized dunes, and the Patna soil is on lake plains. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Hough soils in stable interdune areas (range site 27-18) and 5 percent Rusty soils in low-lying interdune areas (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Isolde soil is very deep and excessively drained. It formed in eolian sand derived from various kinds of rock. Typically, the surface layer is pale brown fine sand about 7 inches thick. The underlying material to a depth of 60 inches or more is pale brown fine sand.

Permeability of the Isolde soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Patna soil is very deep and somewhat excessively drained. It formed in eolian sand derived from various kinds of rock. Typically, the surface layer is light brownish gray fine sand about 5 inches thick. The subsoil is yellowish brown and brown fine sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is brown loamy fine sand and fine sand.

Permeability of the Patna soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Isolde soil is mainly hairy horsebrush, needleandthread, fourwing saltbrush, and Indian ricegrass. The present vegetation in most areas is mainly hairy horsebrush, dalea, fourwing saltbush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the surface layer.

The potential plant community on the Patna soil is mainly Indian ricegrass, fourwing saltbush, and needleandthread. The present vegetation in most areas is mainly Indian ricegrass, littleleaf horsebrush, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the texture of the surface layer.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

Roads generally can easily be constructed and maintained on this unit. Cutting and filling are reduced by building roads in the less sloping areas. When the soils are dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated. The Isolde soil is in range site 27-23, and the Patna soil is in range site 27-9.

663—Isolde fine sand, slightly saline-alkali, 2 to 15 percent slopes. This very deep, excessively drained soil is on stabilized dunes overlying lake terraces. It formed in eolian sand derived from various kinds of rock. Elevation is 4,200 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown fine sand about 6 inches thick. The underlying material to a depth of 60 inches or more is pale brown fine sand.

Included in this unit are about 10 percent Rusty soils in areas between dunes and hummocks (range site 27-9) and 5 percent Playas in depressional blowout areas. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Isolde soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high. The soil is slightly salt- and alkali- affected throughout the profile.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly black greasewood, hairy horsebrush, Indian ricegrass, and needleandthread. The present vegetation in most areas is mainly black greasewood, hairy horsebrush, dalea, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the slightly saline and alkali condition of the surface layer and the texture. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. During prolonged dry periods, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-16.

671—Toulon gravelly loam, 0 to 4 percent slopes. This very deep, excessively drained soil is on shoreline terraces and bars. It formed in waterworn gravel and sand derived from various kinds of rock. Elevation is 4,200 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 110 to 130 days.

Typically, the surface is covered with a pavement of smooth, subangular to well rounded pebbles and cobbles as much as 4 inches in diameter. The surface layer is light brownish gray gravelly loam about 5 inches thick. The subsoil is pale yellow very gravelly loam about 8 inches thick. It has strong brown and yellowish red iron oxide mottles. The substratum to a depth of 60 inches or more is light gray and pinkish white extremely gravelly coarse sand.

Included in this unit are about 5 percent Yerington soils on deposits of eolian sand (range site 27-9) and 5 percent Bluewing soils on alluvial fans (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Toulon soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly as a source of sand and gravel. It is also used for livestock grazing.

The potential plant community on this unit is mainly Indian ricegrass, Bailey greasewood, shadscale, and bottlebrush squirreltail. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bud sagebrush. Much of the surface is barren or supports very sparse vegetation. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

681—Yerington Variant loam, 2 to 4 percent slopes. This very deep, well drained soil is on wind-formed ridges. It formed in eolian material derived from various kinds of rock. Elevation is 4,400 to 4,600 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown loam about 4 inches thick. The underlying material to a depth of 60 inches or more is pale brown loam and clay loam.

Included in this unit is about 10 percent Orizaba soils along the lower fringe of the unit (range site 26-12).

Permeability of this Yerington Variant soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is moderately salt- and alkali-affected.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly black greasewood, Indian ricegrass, shadscale, and Bailey greasewood. The present vegetation in most areas is mainly black greasewood, fourwing saltbush, and seepweed. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the low soil strength. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-24.

691—Ultra gravelly fine sandy loam. This very deep, well drained soil is on the margins of remnant lake terraces and playas. It formed in alluvium derived from various kinds of rock overlying fine lacustrine sediments. Slope is 0 to 2 percent. Elevation is 4,150 to 4,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light gray gravelly fine sandy loam about 2 inches thick. The subsoil is light brown clay about 9 inches thick. The substratum to a depth of 60 inches or more is stratified, pale brown and light brownish gray silty clay loam to silty clay.

Included in this unit is about 10 percent Lahontan soils on lake plains (range site 27-15).

Permeability of this Ultra soil is very slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is strongly salt- and alkali-affected in the subsoil and substratum.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Bailey greasewood, shadscale, Indian ricegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The main limitation for construction of dwellings is the content of highly expansive clay in the soil. If buildings are constructed on the unit, properly designing foundations and footings and diverting runoff away from buildings help to prevent structural damage because of shrinking and swelling.

The main limitation for septic tank absorption fields is the very slow permeability. Use of sandy backfill for the

trench and long absorption fields helps to compensate for this limitation.

This unit is limited for roads because of low soil strength and the content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

701—Veta very gravelly sandy loam, 2 to 8 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. The subsoil is pale brown extremely gravelly loam about 12 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and light gray very gravelly sandy loam and extremely gravelly coarse sandy loam.

Included in this unit are about 7 percent Hunewill soils on alluvial fan remnants (range site 26-16), 5 percent Saralegui soils on old lake plains (range site 26-16), and 3 percent sandy soils on stabilized hummocks (range site 26-14). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Veta soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Most areas of this unit are used for livestock grazing and wildlife habitat. A few areas are used for homesite development.

The potential plant community on this unit is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and spiny hopsage. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very gravelly texture of the surface layer.

The presence of stones and cobbles interferes with the preparation of building sites on this unit. The presence of stones may hamper excavation for absorption lines.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-24.

702—Veta very gravelly sandy loam, occasionally flooded, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans and low stream terraces. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. The subsoil is pale brown very gravelly loam about 12 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and light gray very gravelly sandy loam and very gravelly coarse sandy loam.

Included in this unit are about 7 percent Hunewill soils on alluvial fan remnants (range site 26-16), 5 percent Saralegui soils on old lake plains (range site 26-16), and 3 percent sandy soils on stabilized hummocks (range site 26-14). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Veta soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to occasional, very brief periods of flooding from February through July.

Most areas of this unit are used for livestock grazing and wildlife habitat. A few areas are used for homesite development.

The potential plant community on this unit is mainly basin wildrye, basin big sagebrush, antelope bitterbrush, and wheatgrass. The present vegetation in most areas is mainly basin big sagebrush, green ephedra, spiny hopsage, bottlebrush squirreltail, and antelope bitterbrush. The production of forage is limited by the low average annual precipitation and the low available water capacity: The suitability of this unit for rangeland seeding is very poor. The main limitation is the very gravelly texture of the surface layer.

The main limitation for construction of dwellings is the hazard of flooding. Buildings should be located above the expected flood level.

The main limitation for septic tank absorption fields is the hazard of flooding.

This unit is limited for roads because of the hazard of flooding. Flooding can be controlled only by use of major flood control structures.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-34.

704—Veta very cobbly sandy loam, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,300 to 6,000 feet. The average annual precipitation is about 8 inches, the average

annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very cobbly sandy loam about 6 inches thick. The subsoil is pale brown very gravelly loam about 12 inches thick. The substratum to a depth of 60 inches or more is light brownish gray and light gray extremely gravelly sandy loam and very gravelly coarse sandy loam.

Included in this unit are about 7 percent Hunewill soils on alluvial fan remnants (range site 26-16) and 3 percent sandy soils on stabilized hummocks (range site 27-23). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Veta soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Most areas of this unit are used for livestock grazing and wildlife habitat. A few areas are used for homesite development.

The potential plant community on this unit is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, spiny hopsage, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the cobbles on the surface of the soil, which interfere with use of mechanical equipment and the movement of livestock.

Strongly sloping areas are a concern for design and construction of dwellings on this unit. The presence of stones and cobbles interferes with the preparation of building sites.

Slope is a concern in installing septic tank absorption fields. Absorption lines should be installed on the contour. The presence of stones may hamper excavation for absorption lines.

Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage, a stable base, and an adequate wearing surface. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-24.

711—Vylach-Weena association. This map unit is on dissected terraces and pediments. Elevation is 4,300 to 5,500 feet. Slope is 2 to 30 percent. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 50 percent Vylach gravelly sandy loam, 2 to 8 percent slopes, and 35 percent Weena loam, 15 to 30 percent slopes. The Vylach soil is on pediments that have a thin covering of alluvium, and the Weena soil is on dissected side slopes of terraces and pediments.

Included in this unit are about 8 percent Cleaver soils on old alluvial fan remnants (range site 27-18), 4 percent Patna soils on the leeward sides of hills and gullies (range site 27-9), and 3 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Vylach soil is shallow and well drained. It formed in alluvium derived dominantly from basic igneous rock. Typically, the surface layer is light gray gravelly sandy loam about 5 inches thick. The subsoil is brown sandy clay loam about 7 inches thick. The next layer is a hardpan that is strongly cemented with silica and lime and is about 15 inches thick. Weakly consolidated sandstone or siltstone is at a depth of 27 inches. Depth to the hardpan ranges from 9 to 17 inches. Depth to bedrock ranges from 20 to 30 inches.

Permeability of this Vylach soil is moderately slow. Available water capacity is very low. Effective rooting depth is 9 to 17 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Weena soil is very shallow and well drained. It formed in residuum derived dominantly from sandstone and siltstone. Typically, the surface layer is grayish brown and light brownish gray loam about 7 inches thick. It is about 70 percent soft siltstone pebbles. Soft weathered siltstone is at a depth of 7 inches. Unweathered siltstone is at a depth of 17 inches. Depth to weathered bedrock ranges from 4 to 14 inches.

Permeability of this Weena soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. A few areas of the Vylach soil are used for homesite development.

The potential plant community on the Vylach soil is mainly Indian ricegrass, shadscale, Bailey greasewood, and bud sagebrush. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and bottlebrush squirreltail. The potential plant community on the Weena soil is mainly Indian ricegrass, Bailey greasewood, shadscale, and winterfat. The present vegetation in most areas is mainly shadscale, Bailey greasewood, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the very low available water capacity.

The main limitations for construction of dwellings are the restricted depth to the hardpan in the Vylach soil and the steepness of slope of the Weena soil. The hardpan can be ripped with power equipment.

The main limitation of the Vylach soil for septic tank absorption fields is the restricted depth to the hardpan and bedrock. Absorption fields should be designed to compensate for this limitation. The main limitations of the Weena soil for septic tank absorption fields are the restricted depth to bedrock and slope. Effluent from absorption fields can surface in downslope areas and thus create a hazard to health.

The Vylach soil is limited for roads because of the hardpan. The hardpan can be ripped with power equipment. The Weena soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Vylach soil is in range site 27-18, and the Weena soil is in range site 27-26.

721—Wabuska loamy sand. This very deep, somewhat poorly drained soil is on alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light gray loamy sand about 9 inches thick. The underlying material to a depth of 60 inches or more is stratified silt loam, sandy loam, loamy sand, and loam.

Included in this unit are about 8 percent Wabuska soils in slightly higher areas (range site 27-5), 5 percent Fallon soils on low stream terraces (range site 27-2), and 2 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. The soil is slightly salt- and alkali-affected to a depth of 9 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and pasture. It is also used for homesite development and livestock grazing.

The potential plant community on this unit is mainly basin wildrye, inland saltgrass, alkali sacaton, and black greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and inland saltgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The suitability of this unit for rangeland seeding is poor. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasonal high water table and the rapid movement of water in the upper part of the soil. This rapid movement of water should be considered when selecting the irrigation method or design. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water.

The main limitation for construction of dwellings is the hazard of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the seasonal high water table. Drainage or special design is needed.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-6.

722—Wabuska loam. This very deep, somewhat poorly drained soil is on alluvial flats. It formed in alluvium derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown loam about 9 inches thick. The underlying material to a depth of 60 inches or more is stratified loam, silt loam, sandy loam, and loamy sand.

Included in this unit are about 7 percent strongly saline Wabuska soils in slightly higher lying areas (range site 27-5), 5 percent Fallon soils on low stream terraces (range site 27-2), and 3 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July. Runoff

is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected to a depth of 9 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and pasture. It is also used for homesite development and livestock grazing.

The potential plant community on this unit is mainly basin wildrye, inland saltgrass, alkali sacaton, and black greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and inland saltgrass. The production of forage is limited by the low average annual precipitation and the drop in the level of the water table late in summer. The suitability of this unit for rangeland seeding is poor. The main limitations are wetness of the soil in spring and droughtiness late in summer and in fall. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

This unit is well suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasonal high water table. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. Deep-rooted crops are suited to areas where the natural drainage is adequate or where a drainage system has been installed. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water.

The main limitation for construction of dwellings is the hazard of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the seasonal high water table. Drainage or special design is needed.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIw, irrigated, and VIw, nonirrigated. It is in range site 27-6.

723—Wabuska loam, moderately saline-alkali. This very deep, somewhat poorly drained soil is on alluvial flats. It formed in alluvial deposits derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown loam 9 inches thick. The underlying material to a depth of 60 inches or more is stratified loam, silt loam, sandy loam, and loamy sand.

Included in this unit are about 8 percent strongly salt- and alkali-affected Wabuska soils in slightly higher areas (range site 27-5), 5 percent Fallon soils on low stream terraces (range site 27-2), and 2 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected to a depth of 9 inches. The soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated cultivated crops and pasture. It is also used for homesite development and livestock grazing.

The potential plant community on this unit is mainly basin wildrye, inland saltgrass, alkali sacaton, and black greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and inland saltgrass. The production of forage is limited by the low average annual precipitation, the drop in the level of the water table late in summer and in fall, and the content of salts and alkali in the surface layer. The suitability of this unit for rangeland seeding is very poor. The main limitations are wetness in spring, droughtiness late in summer and in fall, and the content of salts and alkali in the soil.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the seasonal high water table and the moderate content of salts and alkali. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water.

The main limitation for construction of dwellings is the hazard of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the seasonal high water table. Drainage or special design is needed.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses IIIw, irrigated, and VIw, nonirrigated. It is in range site 27-6.

724—Wabuska loam, strongly saline-alkali. This very deep, somewhat poorly drained soil is on alluvial

flats. It formed in alluvial deposits derived from various kinds of rock. Slope is 0 to 2 percent. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown loam 9 inches thick. The underlying material to a depth of 60 inches or more is stratified silt loam, loam, sandy loam, and sand.

Included in this unit are about 10 percent Orizaba soils in shallow depressional areas (range site 27-5) and 5 percent Sagouspe soils in sand-filled stream channels (range site 27-2). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is strongly salt- and alkali-affected to a depth of 9 inches. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for irrigated pasture. It is also used for homesite development and livestock grazing.

The potential plant community on this unit is mainly alkali sacaton, inland saltgrass, basin wildrye, and black greasewood. The present vegetation in most areas is mainly black greasewood, inland saltgrass, and rubber rabbitbrush. The production of forage is limited by the low average annual precipitation, the content of salts and alkali in the soil, and the drop in the level of the water table late in summer and in fall. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the content of salts and alkali in the soil.

This unit is poorly suited to irrigated hay and pasture. The main limitations are the seasonal high water table and the content of salts and alkali. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. Salt-tolerant grasses can be grown. The rate of application of irrigation water should be regulated to prevent a rise in the level of the water table. The content of salts and alkali can be reduced by using soil amendments such as gypsum, by leaching, and by carefully applying irrigation water.

The main limitation for construction of dwellings is the hazard of flooding. Flooding can be controlled only by use of major flood control structures.

The main limitation for septic tank absorption fields is the seasonal high water table. Drainage or special design is needed.

This unit is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage.

This map unit is in capability subclasses VIw, irrigated, and VIIw, nonirrigated. It is in range site 27-5.

725—Wabuska-Delp-Playas complex, 0 to 15 percent slopes. This map unit is on alluvial flats. Elevation is 4,200 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Wabuska loam, moderately saline-alkali; 30 percent Delp sand; and 10 percent Playas. The Wabuska soil is on nearly level alluvial flats, the Delp soil is on dunes and hummocks of alluvial flats, and the Playas are in shallow depressional areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Orizaba soils in shallow depressional areas (range site 27-5) and 5 percent Parran soils in low-lying areas (range site 27-25). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Wabuska soil is very deep and somewhat poorly drained. It formed in alluvial deposits derived from various kinds of rock. Slope is 0 to 2 percent. Typically, the surface layer is pale brown loam about 9 inches thick. The underlying material to a depth of 60 inches or more is stratified silt loam, loam, sandy loam, and sand.

Permeability of this Wabuska soil is moderate. Available water capacity is moderate. Effective rooting depth is limited by a seasonal high water table that is at a depth of 2.5 to 3.5 feet from May through July. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is moderately salt- and alkali-affected to a depth of 9 inches. The soil is subject to flooding during prolonged, high intensity storms. Channeling and deposition are common along streambanks.

The Delp soil is very deep and well drained. It formed in eolian sand derived from granitic rock. Slope is 2 to 15 percent. Typically, the surface layer is light gray sand about 5 inches thick. The subsoil is pale brown, stratified sandy loam and loamy sand about 14 inches thick. The substratum to a depth of 60 inches or more is stratified sand to loamy fine sand.

Permeability of this Delp soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is high.

Playas consists of barren, nearly level areas that are somewhat lower lying than surrounding areas. The surface layer is moderately fine textured or fine textured.

Areas of Playas are subject to frequent, brief to long periods of ponding after heavy rains.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Wabuska soil is mainly alkali sacaton, inland saltgrass, basin wildrye, and black greasewood. The present vegetation in most areas is mainly black greasewood, rubber rabbitbrush, and inland saltgrass. The production of forage is limited by the low average annual precipitation, the drop in the level of the water table late in summer and in fall, and the content of salts and alkali in the soil. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the content of salts and alkali in the soil. Grazing should be delayed until the soil has drained sufficiently and is firm enough to withstand trampling by livestock.

The potential plant community on the Delp soil is mainly Indian ricegrass, black greasewood, hairy horsebrush, and needleandthread. The present vegetation in most areas is mainly black greasewood, hairy horsebrush, spiny horsebrush, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the sandy texture of the surface layer.

The Wabuska soil is limited for roads because of the hazard of frost heaving. Local roads and streets may require a special base to avoid frost heave damage. Cutting and filling are reduced by building roads in the less sloping areas of the Delp soil. When the Delp soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIw, nonirrigated. The Wabuska soil is in range site 27-6, and the Delp soil is in range site 27-16.

731—Hunewill sandy loam, 4 to 8 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically, the surface layer is light brownish gray sandy loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam, and the lower 5 inches is very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely cobbly loamy sand with some layers of extremely gravelly sand.

Included in this unit are about 8 percent Stucky soils on the upper part of convex alluvial fans (range site 26-47) and 7 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development and irrigated crops.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low available water capacity and the low average annual precipitation.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by slope and the low available water capacity. Sprinkler irrigation can be used, but water needs to be applied slowly to minimize runoff. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

The presence of stones and cobbles interferes with the preparation of building sites on this unit.

The main limitation for septic tank absorption fields is the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclasses IIIe, irrigated, and VIc, nonirrigated. It is in range site 26-16.

732—Hunewill stony loam, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically, the surface layer is light brownish gray stony loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam, and the lower 5 inches is very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand with some layers of extremely cobbly sand.

Included in this unit are about 10 percent Stucky soils on the upper part of convex alluvial fans (range site 26-47) and 5 percent Veta soils in drainageways (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low available water capacity and the low average annual precipitation.

Strongly sloping areas are a concern for design and construction of dwellings on this unit. The presence of stones and cobbles interferes with the preparation of building sites.

The main limitation for septic tank absorption fields is the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIs and in range site 26-16.

733—Hunewill stony loam, 15 to 30 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically, the surface layer is light brownish gray stony loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam, and the lower 5 inches is very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand with some layers of extremely cobbly loamy sand.

Included in this unit are about 10 percent Stucky soils on the upper part of convex alluvial fans (range site 26-47) and 5 percent Veta soils in drainageways (range site 26-14). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the low available water capacity and the low average annual precipitation.

Steepness of slope is a concern for design and construction of dwellings on this unit.

The main limitations for septic tank absorption fields are slope and the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

This unit is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIs and in range site 26-16.

734—Hunewill very gravelly sandy loam, 2 to 8 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam, and the lower 5 inches is brown very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand with some layers of extremely cobbly loamy sand.

Included in this unit are about 8 percent Stucky soils on the upper part of convex alluvial fans (range site 26-47) and 7 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow. Available water capacity is low. Effective rooting depth is

60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very gravelly texture of the surface layer.

This unit is poorly suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by slope, the very gravelly texture of the surface layer, and the low available water capacity. Sprinkler irrigation can be used, but water needs to be applied slowly to minimize runoff. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

The presence of stones and cobbles interferes with the preparation of building sites on this unit.

The main limitation for septic tank absorption fields is the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

If surface drainage and a stable base are provided, damage from frost heaving is minimized for roads on this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

735—Hunewill very gravelly sandy loam, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 4,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 3 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam, and the lower 5 inches is very gravelly sandy loam. The substratum to a depth of 60 inches or more is grayish brown sand and gravel with some layers of extremely cobbly loamy sand.

Included in this unit are about 10 percent Stucky soils on the upper part of convex alluvial fans (range site 26-47) and 5 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Hunewill soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for homesite development and irrigated crops.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Indian ricegrass. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very gravelly texture of the surface layer.

This unit is poorly suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by slope, the very gravelly texture of the surface layer, and the low available water capacity. Sprinkler irrigation can be used, but water needs to be applied slowly to minimize runoff. Use of this method permits the even, controlled application of water, reduces runoff, and minimizes the risk of erosion. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

Steepness of slope is a concern for design and construction of dwellings on this unit. The presence of stones and cobbles interferes with the preparation of building sites.

The main limitation for septic tank absorption fields is the rapid movement of water through the substratum. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 26-16.

741—Wedertz-Wellington-Saralegui complex, 0 to 2 percent slopes. This map unit is on alluvial fans and lake terraces. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 40 percent Wedertz coarse sandy loam, 30 percent Wellington coarse sandy loam, and 20 percent Saralegui sandy loam. The Wedertz soil is on the lower lying lake terraces, the Wellington soil is on the higher lying lake terraces, and the Saralegui soil is on inset alluvial fans. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent sandy soils on stabilized dunes and hummocks (range site 27-23).

The Wedertz soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock overlying lacustrine material. Typically, the surface layer is brown and light gray coarse sandy loam about 9 inches thick. The subsoil is brown sandy clay loam about 19 inches thick. The substratum to a depth of 60 inches or more is light gray and white loam that is weakly and continuously cemented with silica and lime.

Permeability of the Wedertz soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Wellington soil is shallow and well drained. It formed in alluvial and lacustrine sediment derived from various kinds of rock. Typically, the surface layer is grayish brown coarse sandy loam about 4 inches thick. The subsoil is brown and pale brown sandy clay loam about 11 inches thick. The upper 11 inches of the substratum is a hardpan that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is light brownish gray very fine sandy loam. Depth to the hardpan ranges from 12 to 20 inches.

Permeability of the Wellington soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is slow, and the hazard of water erosion is slight.

The Saralegui soil is very deep and well drained. It formed in wind-worked alluvial and lacustrine material derived from various kinds of rock. Typically, the surface layer is brown and grayish brown sandy loam about 5 inches thick. The subsoil is brown and yellowish brown sandy loam about 27 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown loamy sand and sand.

Permeability of the Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for irrigated crops and livestock grazing.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, the moderate available capacity of the Wedertz and Saralegui soils, and the very low available water capacity of the Wellington soil. The suitability of the Wedertz and Saralegui soils for rangeland seeding is poor. The main limitation is the low average annual precipitation. The suitability of the Wellington soil is very poor. The main limitation is the very low available water capacity. Seeding of large areas of the more favorable Wedertz and Saralegui soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Wellington soils.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the moderate available water capacity of the Wedertz and Saralegui soils and the very low available water capacity of the Wellington soil. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

If surface drainage and a stable base are provided for roads on the Wedertz and Saralegui soils, damage from frost heaving is minimized. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan in the Wellington soil.

This map unit is in capability subclasses IIc, irrigated, and VIc, nonirrigated. It is in range site 26-16.

742—Wedertz-Wellington coarse sandy loams, 2 to 4 percent slopes. This map unit is on old lake terraces. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Wedertz coarse sandy loam and 40 percent Wellington coarse sandy loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Saralegui soils (range site 26-16) and 5 percent sandy soils on stabilized dunes and hummocks (range site 27-23). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Wedertz soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock overlying lacustrine sediment. Typically, the surface layer is brown and light gray coarse sandy loam about 9 inches thick. The subsoil is brown sandy clay loam about 19 inches thick. The substratum to a depth of 60 inches or more is light gray and white loam and is weakly and continuously cemented with silica and lime.

Permeability of the Wedertz soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Wellington soil is shallow and well drained. It formed in alluvial and lacustrine sediment derived from various kinds of rock. Typically, the surface layer is grayish brown coarse sandy loam about 4 inches thick. The subsoil is brown and pale brown sandy clay loam about 11 inches thick. The upper 11 inches of the substratum is a hardpan that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is light brownish gray very fine sandy loam. Depth to the hardpan ranges from 12 to 20 inches.

Permeability of the Wellington soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for irrigated crops and livestock grazing.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, the moderate available water capacity of the Wedertz soil, and the very low available water capacity of the Wellington soil. The suitability of the Wedertz soil for rangeland seeding is poor. The main limitation is the low average annual precipitation. The suitability of the Wellington soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. Seeding of large areas of the more favorable Wedertz soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Wellington soils.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the moderate available water capacity of the Wedertz soil, the very low available water capacity of the Wellington soil, and slope. Furrow, border, corrugation, and sprinkler irrigation systems are suited to the unit. The method used generally is governed by the crop grown. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

If surface drainage and a stable base are provided for roads on the Wedertz soil, damage from frost heaving is minimized. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. Roads on the Wellington soil should be designed to minimize cuts because of the limited depth to the underlying hardpan.

This map unit is in capability subclasses IIe, irrigated, and VIc, nonirrigated. It is in range site 26-16.

743—Wedertz-Wellington coarse sandy loams, 4 to 8 percent slopes. This map unit is on old lake terraces. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Wedertz coarse sandy loam and 40 percent Wellington coarse sandy loam. The Wedertz soil is in the slightly lower areas, and the Wellington soil is in the slightly higher areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Saralegui soils (range site 26-16) and 5 percent sandy soils on stabilized dunes and hummocks (range site 26-14). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Wedertz soil is very deep and well drained. It formed in alluvial and lacustrine material derived dominantly from granitic rock. Typically, the surface layer averages coarse sandy loam that is brown and light gray. It is about 9 inches thick. The subsoil is brown sandy clay loam about 19 inches thick. The substratum to a depth of 60 inches or more averages loam that is light gray and white and is weakly and continuously cemented with silica and lime.

Permeability of the Wedertz soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Wellington soil is shallow and well drained. It formed in alluvial and lacustrine sediment derived from various kinds of rock. Typically, the surface layer averages coarse sandy loam that is grayish brown. It is about 4 inches thick. The subsoil is brown and pale brown sandy clay loam about 11 inches thick. The upper 11 inches of the substratum is a hardpan that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is light brownish gray very fine sandy loam. Depth to the hardpan ranges from 12 to 20 inches.

Permeability of the Wellington soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for irrigated crops and livestock grazing.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is

mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, the moderate available water capacity of the Wedertz soil, and the very low available water capacity of the Wellington soil. The suitability of the Wedertz soil for rangeland seeding is poor. The main limitation is the low average annual precipitation. The suitability of this Wellington soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. Seeding of large areas of the more favorable Wedertz soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Wellington soils.

This unit is suited to irrigated hay, pasture, and cultivated crops. It is limited mainly by the moderate available water capacity of the Wedertz soil, the very low available water capacity of the Wellington soil, and slope. Sprinkler irrigation is the most suitable method of applying water. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. The method used generally is governed by the crop grown. To avoid overirrigating and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs.

If surface drainage and a stable base are provided for roads on the Wedertz soil, damage from frost heaving is minimized. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan in the Wellington soil.

This map unit is in capability subclasses IIIe, irrigated, and VIc, nonirrigated. It is in range site 26-16.

744—Wedertz-Saralegui-Wellington complex, 8 to 15 percent slopes. This map unit is on high lake terraces and alluvial fans. Elevation is 4,500 to 5,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 40 percent Wedertz coarse sandy loam, 30 percent Saralegui sandy loam, and 20 percent Wellington coarse sandy loam. The Wedertz soil is on the slightly lower lake terraces, the Saralegui soil is on alluvial fans, and the Wellington soil is on the slightly higher lake terraces. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent sandy soils on stabilized dunes and hummocks (range site 27-23).

The Wedertz soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock over lacustrine material. Typically, the surface layer is brown and light gray coarse sandy loam about 9 inches thick. The subsoil is brown sandy clay loam about 19 inches thick. The substratum to a depth of 60 inches or more is light gray and white loam and is weakly and continuously cemented with silica and lime.

Permeability of the Wedertz soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Saralegui soil is very deep and well drained. It formed in wind-worked alluvial and lacustrine material derived dominantly from granitic rock. Typically, the surface layer is brown and grayish brown sandy loam about 4 inches thick. The subsoil is brown and yellowish brown sandy loam about 32 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown loamy sand and sand.

Permeability of the Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Wellington soil is shallow and well drained. It formed in alluvial and lacustrine sediment derived from various kinds of rock. Typically, the surface layer is grayish brown coarse sandy loam about 4 inches thick. The subsoil is brown and pale brown sandy clay loam about 11 inches thick. The next layer is a hardpan that is cemented with silica and lime and is about 11 inches thick. The substratum to a depth of 60 inches or more is light brownish gray very fine sandy loam. Depth to the hardpan ranges from 12 to 20 inches.

Permeability of the Wellington soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, the moderate available water capacity of the Wedertz and Saralegui soils, and the very low available water capacity of the Wellington soil. The suitability of the Wedertz and Saralegui soils for rangeland seeding is poor. The main limitation is the low average annual precipitation. The suitability of the Wellington soil for rangeland seeding is very poor. The main limitation is the very low available water capacity. Seeding of large areas of the more favorable Wedertz and Saralegui soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Wellington soils.

If surface drainage and a stable base are provided for roads on the Wedertz and Saralegui soils, damage from frost heaving is minimized. Trafficability of roads can be

improved by providing a stable base and an adequate wearing surface. Roads on the Wellington soil should be designed to minimize cuts because of the limited depth to the underlying harpan. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIc, nonirrigated, and in range site 26-16.

746—Wellsed-Wedlar association. This map unit is on old alluvial fans. Slope is 2 to 8 percent. Elevation is 6,000 to 6,400 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 50 percent Wellsed gravelly fine sand, 2 to 8 percent slopes, and 40 percent Wedlar loamy sand, 2 to 4 percent slopes. The Wellsed soil is in plane and convex areas, and the Wedlar soil is in slightly concave areas and in shallow swales.

Included in this unit are about 5 percent Veta soils in drainageways (range site 26-24) and about 5 percent Ravenell soils on low rounded sediment remnants (range site 27-49). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Wellsed soil is moderately deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is pale brown gravelly fine sand about 6 inches thick. The subsoil is yellowish brown gravelly sandy clay loam about 9 inches thick. The upper 20 inches of the substratum averages gravelly loamy sand that is pale brown, the next 15 inches is a hardpan that is cemented with silica and lime, and the lower part to a depth of 60 inches or more is stratified loamy sand and sandy loam. Depth to the hardpan ranges from 20 to 40 inches.

Permeability of this Wellsed soil is moderately slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Wedlar soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown loamy sand about 6 inches thick. The upper 8 inches of the subsoil is pale brown loam, and the lower 23 inches is yellowish brown sandy clay and sandy clay loam. The substratum to a depth of 60 inches or more is pale brown gravelly sandy loam.

Permeability of this Wedlar soil is slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Wellsed soil is mainly Wyoming big sagebrush, galleta, Indian ricegrass, and spiny hopsage. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and spiny hopsage. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity.

The potential plant community on the Wedlar soil is mainly Wyoming big sagebrush, galleta, Indian ricegrass, and spiny hopsage. The present vegetation in most areas is mainly Wyoming big sagebrush, Indian ricegrass, and spiny hopsage. The production of forage is limited by the low average annual precipitation and moderate available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the very low available water capacity of the surface layer.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If surface drainage and a stable base are provided for roads on the Wellsed soil, damage from frost heaving is minimized. Deep cuts in the Wellsed soil should be avoided because of the limited depth to the underlying hardpan. The Wedlar soil is limited for roads because of the low strength resulting from the content of highly expansive clay. When building roads on this unit, construction and maintenance cost can be reduced if areas of the clayey Wedlar soil are avoided.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-35.

751—Malpais gravelly loamy sand, 2 to 8 percent slopes. This very deep, well drained soil is on alluvial fans and along drainageways. It formed in alluvium derived dominantly from mixed rock. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray gravelly loamy sand about 3 inches thick. The subsoil and substratum to a depth of 60 inches or more are pale brown and brown and average very gravelly sandy loam and extremely cobbly sandy loam.

Included in this unit are about 5 percent Perazzo soils on older alluvial fan remnants (range site 27-18) and 5 percent Yerington soils in areas of eolian deposits (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Malpais soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bottlebrush squirreltail, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, Indian ricegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Unless an adequate wearing surface is maintained for roads on this unit, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

753—Malpais cobbly sandy loam, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans and along drainageways. It formed in alluvium derived dominantly from mixed igneous rock. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown cobbly sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly sandy loam and extremely cobbly sandy loam.

Included in this unit are about 5 percent Perazzo soils on alluvial fan remnants (range site 27-18) and 5 percent Yerington soils in areas of eolian deposits (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Malpais soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bottlebrush squirreltail, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, Indian ricegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Unless an adequate wearing surface is maintained for roads on this unit, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

754—Malpais complex, 2 to 15 percent slopes. This map unit is on recent alluvial fans. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Malpais gravelly sandy loam, 2 to 8 percent slopes, and 30 percent Malpais stony sandy loam, 4 to 15 percent slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Perazzo soils on alluvial fan remnants (range site 27-18) and 5 percent Yerington soils in areas of eolian deposits (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Malpais gravelly sandy loam is very deep and well drained. It formed in alluvium derived dominantly from mixed igneous rock. Typically, the surface layer is pale brown gravelly sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly sandy loam and extremely cobbly sandy loam.

Permeability of the Malpais gravelly sandy loam is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Malpais stony sandy loam is very deep and well drained. It formed in alluvium derived dominantly from mixed igneous rock. Typically, the surface layer is pale brown stony sandy loam about 3 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly sandy loam and extremely cobbly sandy loam.

Permeability of the Malpais stony sandy loam is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bottlebrush squirreltail, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, Indian ricegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

755—Malpais-Yerington complex, 4 to 8 percent slopes. This map unit is on alluvial fans and on low dunes and sand sheets. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Malpais gravelly loamy sand and 30 percent Yerington loamy fine sand. The Malpais soil is on alluvial fans, and the Yerington soil is on stabilized low dunes and hummocks. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Perazzo soils on alluvial fan remnants (range site 27-18) and 5 percent Patna soils on older eolian deposits (range site 27-9). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Malpais soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is light brownish gray gravelly loamy sand about 3 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly sandy loam and extremely cobbly sandy loam.

Permeability of the Malpais soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Yerington soil is very deep and well drained. It formed in wind-worked alluvial and lacustrine sediment derived dominantly from mixed sandy material. Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam.

Permeability of the Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Malpais soil is mainly Indian ricegrass, shadscale, bottlebrush squirreltail, and Bailey greasewood. The present vegetation in most areas is mainly shadscale, Bailey greasewood, Indian ricegrass, and Nevada ephedra. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Yerington soil is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly low rabbitbrush, Indian ricegrass, Bailey greasewood, and spiny hopsage. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Livestock grazing should be managed to protect this unit from blowing and drifting sand.

Because of the underlying very cobbly material in the Malpais soil, deep cuts should be avoided. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. Roads can easily be constructed and maintained on the Yerington soil.

This map unit is in capability subclass VIIs, nonirrigated. The Malpais soil is in range site 27-18, and the Yerington soil is in range site 27-9.

761—Yerington loamy fine sand, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in wind-worked sandy alluvial and lacustrine sediment derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam.

Included in this unit are about 8 percent Patna soils on alluvial fans and terraces (range site 27-9), 5 percent Tocan soils on low terraces (range site 27-24), and 2 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-8). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are rapid permeability and moderate available water capacity. Because of the rapid permeability, sprinkler irrigation is best suited to this unit. Because the soil is droughty,

applications of irrigation water should be light and frequent. If furrow irrigation is used, water should be applied at frequent intervals and runs should be short. Soil blowing can be reduced by returning crop residue to the soil and practicing minimum tillage.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIs, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

762—Yerington loamy fine sand, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in wind-worked sandy alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand to sandy loam.

Included in this unit are about 8 percent Patna soils on alluvial fans and terraces (range site 27-9), 5 percent Tocan soils on low terraces (range site 27-24), and 2 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect this unit from blowing and drifting sand.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are rapid permeability, moderate available water capacity, and slope. Because of the slope, soil depth, and rapid permeability, sprinkler irrigation is best suited to this unit. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. Because the soil is droughty, applications of irrigation water should be light and frequent. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion. Soil blowing can be reduced by returning crop residue to the soil and practicing minimum tillage.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIs, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

763—Yerington loamy fine sand, 4 to 8 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in wind-worked alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam.

Included in this unit are about 8 percent Patna soils on alluvial fans and terraces (range site 27-9), 5 percent Tocan soils on low terraces (range site 27-24), and 2 percent Malpais soils in drainageways and on associated alluvial fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are rapid permeability, moderate available water capacity, and slope. Because of the slope, soil depth, and rapid permeability, sprinkler irrigation is best suited to this unit. Because the soil is droughty, applications of irrigation water should be light and frequent. Use of pipe, ditch

lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion. Soil blowing can be reduced by returning crop residue to the soil and practicing minimum tillage.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIs, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

764—Yerington loamy fine sand, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in wind-worked sandy alluvium derived from various kinds of rock. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam.

Included in this unit are about 10 percent Isolde soils on low stabilized dunes and hummocks (range site 27-23) and 5 percent Patna soils on the lower end of alluvial fans (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Steepness of slope is a concern for design and construction of dwellings on this unit.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-9.

765—Yerington gravelly sandy loam, 0 to 2 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock and eolian sand. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown gravelly sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam and has lenses of gravelly material.

Included in this unit are about 8 percent Malpais soils in drainageways (range site 27-18) and 7 percent Isolde soils on stabilized dunes and hummocks (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitation is the moderate available water capacity. The moderately rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprinkler irrigation is the most suitable method of applying water. Because the soil is droughty, applications of irrigation water should be light and frequent. If furrow irrigation is used, water should be applied at frequent intervals and runs should be short.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIs, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

766—Yerington gravelly sandy loam, 2 to 4 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock and eolian sand. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown gravelly sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam and has lenses of gravelly material.

Included in this unit are about 8 percent Malpais soils in drainageways (range site 27-18) and 7 percent Isolde soils on stabilized dunes and hummocks (range site 27-23). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitation is the moderate available water capacity. The moderately rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprinkler irrigation is the most suitable method of applying water. Because the soil is droughty, applications of irrigation water should be light and frequent. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope. For the efficient application and removal of irrigation water, leveling is needed in sloping areas. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIe, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

767—Yerington gravelly sandy loam, 4 to 8 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock and eolian sand. Elevation is 4,400 to 5,000 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is pale brown gravelly sandy loam about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown, stratified loamy sand and sandy loam and has lenses of gravelly or cobbly material.

Included in this unit are about 10 percent Isolde soils on stabilized dunes and hummocks (range site 27-23) and 5 percent Malpais soils in drainageways (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Yerington soil is rapid. Available water capacity is moderate. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for irrigated crops and homesite development.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, needleandthread, and Bailey greasewood. The present vegetation in most areas is mainly Douglas rabbitbrush, Indian ricegrass, Bailey greasewood, and dalea. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

If this unit is used for irrigated hay, pasture, and cultivated crops, the main limitations are the moderate available water capacity and slope. The moderately rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Sprinkler irrigation is the most suitable method of applying water. Because the soil is droughty, applications of irrigation water should be light and frequent. Use of pipe, ditch lining, or drop structures in irrigation ditches facilitates irrigation and reduces ditch erosion.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on this unit.

This map unit is in capability subclasses IIIe, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

771—Biddleman association. This map unit is on high lake terraces and old alluvial fans. Slope is 0 to 15 percent. Elevation is 4,200 to 4,400 feet. The average annual precipitation is about 5 inches, the average

annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Biddleman gravelly sandy loam, 0 to 8 percent slopes, and 25 percent Biddleman very stony sandy loam, 4 to 15 percent slopes. The Biddleman gravelly sandy loam is on the mid slopes and toe slopes of fans, and the Biddleman very stony sandy loam is on the upper part of fans and in streaks extending into middle areas of fans.

Included in this unit are about 10 percent Bluewing soils on alluvial fans (range site 27-18) and 5 percent Bango soils on toe slopes of alluvial fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Biddleman gravelly sandy loam is very deep and well drained. It formed in alluvium over shoreline pebbles derived from various kinds of rock. Typically, the surface layer is light brownish gray gravelly sandy loam about 3 inches thick. The subsoil is yellowish brown and brown gravelly loam about 6 inches thick. The substratum to a depth of 60 inches or more averages extremely gravelly sand that is pale brown.

Permeability of this Biddleman soil is moderately slow. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is slow or medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected to a depth of 8 inches.

The Biddleman very stony sandy loam is very deep and well drained. It formed in alluvium over shoreline pebbles derived from various kinds of rock. Typically, the surface layer is light brownish gray very stony sandy loam about 3 inches thick. The subsoil is pale brown gravelly clay loam and gravelly loam about 6 inches thick. The substratum to a depth of 60 inches or more averages extremely gravelly sand that is light gray.

Permeability of this Biddleman soil is moderately slow. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected to a depth of 9 inches.

This unit is used mainly for livestock grazing. It is also used as a source of sand and gravel and for homesite development.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bud sagebrush, and Bailey greasewood. The present vegetation in most areas is mainly Bailey greasewood, shadscale, Indian ricegrass, and bud sagebrush. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation, the very low available water capacity, and the slightly saline and alkali surface layer.

The Biddleman gravelly sandy loam is well suited to the construction of dwellings. Strongly sloping areas are a concern for design and construction of dwellings on the Biddleman very stony sandy loam.

The main limitation for septic tank absorption fields is inadequate filtration of effluent. Because the substratum is rapidly permeable, special design may be needed to avoid polluting ground water.

Roads can easily be constructed and maintained on the Biddleman gravelly sandy loam. Cutting and filling are reduced by building roads in the less sloping areas of the Biddleman very stony sandy loam or in areas of the Biddleman gravelly sandy loam.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-18.

781—Celeton very cobbly sandy loam, 8 to 30 percent slopes. This very shallow, somewhat excessively drained soil is on dissected side slopes of hills. It formed in residuum derived dominantly from diatomaceous earth. Elevation is 4,400 to 5,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 52 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray very cobbly sandy loam about 2 inches thick. The underlying material is white sandy loam about 7 inches thick. Diatomaceous earth is at a depth of 9 inches. Depth to soft bedrock ranges from 4 to 14 inches.

Included in this unit are about 10 percent Malpais soils in drainageways and on short alluvial fans (range site 27-18) and 5 percent areas of Badland that consist of diatomaceous earth and are on ridges and steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Celeton soil is rapid. Available water capacity is very low. Effective rooting depth is 4 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly Bailey greasewood, shadscale, Indian ricegrass, and desert needlegrass. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and very low available water capacity. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of steepness of slope in some areas. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-26.

782—Weena-Malpais association. This map unit is on eroded hillsides and on associated alluvial fans and drainageways. Slope is 4 to 50 percent. Elevation is 4,300 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Weena silt loam, 15 to 50 percent slopes, and 30 percent Malpais cobbly sandy loam, 4 to 15 percent slopes. The Weena soil is on side slopes of dissected lakebeds, and the Malpais soil is on inset alluvial fans and in drainageways.

Included in this unit are about 5 percent areas of exposed sandstone and siltstone and 5 percent areas of Badland on steep, eroded side slopes of soft lake deposits. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Weena soil is very shallow and well drained. It formed in residuum derived dominantly from sedimentary rock. Typically, the Weena soil averages light brownish gray silt loam about 7 inches deep over weathered sandstone and siltstone. Weathered, soft bedrock is at a depth of 7 inches. Depth to bedrock ranges from 4 to 14 inches.

Permeability of this Weena soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Malpais soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is pale brown cobbly sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is very gravelly sandy loam to extremely cobbly sandy loam.

Permeability of this Malpais soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Weena soil is mainly Indian ricegrass, Bailey greasewood, shadscale, and desert needlegrass. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation, very low available water capacity, and steepness of slope in some areas.

The potential plant community on the Malpais soil is mainly Indian ricegrass, shadscale, Bailey greasewood, and bottlebrush squirreltail. The present vegetation in most areas is mainly shadscale, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitaton.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas of the Malpais soil. Loss of the surface layer results in a severe decrease in productivity and in the potential of the Weena soil to produce plants suitable for grazing.

This unit is limited for roads because of steepness of slope in some areas and stones and cobbles on the Malpais soil. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated. The Weena soil is in range site 27-26, and the Malpais soil is in range site 27-18.

791—Flex-Duco association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 5,400 to 7,100 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 85 to 105 days.

This unit is 45 percent Flex gravelly loam and 35 percent Duco extremely stony loam. The Flex soil is on south-facing side slopes and on ridges, and the Duco soil is on north-facing side slopes.

Included in this unit are about 5 percent very gravelly shallow soils on very steep, south-facing side slopes (range site 26-15), 5 percent Hunewill soils on fans and lower lying side slopes (range site 26-16), and 10 percent areas of Rock outcrop on ridges and in very steep areas. Included areas make up about 20 percent of the total acreage. The percentage varies from one area to another.

The Flex soil is shallow and very shallow and is well drained. It formed in residuum derived dominantly from weathered metavolcanic and tuffaceous rock. Typically, the surface layer is grayish brown gravelly loam about 4 inches thick. The subsoil is strong brown and reddish

brown very gravelly sandy clay loam about 8 inches thick. Soft, weathered metavolcanic rock is at a depth of 12 inches. Depth to soft, weathered bedrock ranges from 6 to 12 inches.

Permeability of the Flex soil is moderate. Available water capacity is very low. Effective rooting depth is 6 to 12 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Duco soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown extremely stony loam about 4 inches thick. The subsoil is brown and pale brown very cobbly sandy clay loam about 15 inches thick. Hard andesite is at a depth of 19 inches. Depth to hard bedrock ranges from 10 to 20 inches.

Permeability of the Duco soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for livestock grazing, woodland, and wildlife habitat.

The potential plant community on the Flex soil is mainly Thurber needlegrass, bottlebrush squirreltail, Wyoming big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and antelope bitterbrush. Singleleaf pinyon has invaded. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope in some areas and the very low available water capacity. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the soil from excessive erosion and to prevent overgrazing in the less sloping areas. Because of the density of the pinyon trees in most areas, this soil can be managed as woodland. The reestablishment of the rangeland plant community in some areas may be difficult.

The Duco soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are the extremely stony surface, steepness of slope in some areas, and the hazard of erosion. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The Flex soil is limited for roads because of steepness of slope. The Duco soil is limited for roads because of the steepness of slope, shallow depth to bedrock, and large amount of cobbles and stones in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock in the Duco soil. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIe, nonirrigated. The Flex soil is in range site 26-15. The Duco soil is not placed in a range site.

792—Pirouette-Osobb-Rock outcrop association. This map unit is on hills and low mountains. Slope is 0 to 30 percent. Elevation is 4,400 to 5,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 40 percent Pirouette very stony very fine sandy loam, 0 to 8 percent slopes; 40 percent Osobb very stony very fine sandy loam, 8 to 30 percent slopes; and 10 percent Rock outcrop. The Pirouette soil is on the tops of hills and low mountains, the Osobb soil is on the sides of hills and low mountains, and Rock outcrop is in steep, eroded areas.

Included in this unit are about 5 percent Osobb soils that have a sandy surface layer and are in the western part of the unit (range site 27-23) and 5 percent Biddleman soils on alluvial fans (range site 27-18). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Pirouette soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very stony very fine sandy loam about 4 inches thick. The subsoil is light brown very cobbly clay loam about 10 inches thick. The substratum is a hardpan that is cemented with silica and lime and is about 9 inches thick. Hard andesite is at a depth of 23 inches. Depth to the hardpan ranges from 11 to 20 inches. Depth to bedrock ranges from 12 to 23 inches.

Permeability of this Pirouette soil is moderately slow. Available water capacity is very low. Effective rooting depth is 11 to 20 inches. Runoff is slow to medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected to a depth of 14 inches.

The Osobb soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock over tuff. Typically, the surface layer averages very stony very fine sandy loam that is light gray. It is about 4 inches thick. The next layer is pale brown extremely cobbly loam about 7 inches thick. Below this is a hardpan that is cemented with silica and lime and is about 1 inch thick. Soft tuff is at a depth of 12 inches. Depth to the hardpan ranges from 8 to 20 inches. Depth to bedrock ranges from 9 to 30 inches.

Permeability of this Osobb soil is moderately rapid. Available water capacity is very low. Effective rooting

depth is 8 to 20 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of tuff and areas where soil material is less than 4 inches thick over bedrock. These areas support little if any vegetation.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Pirouette soil is mainly Indian ricegrass, shadscale, bottlebrush squirreltail, and bud sagebrush. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the stones on the surface.

The potential plant community on the Osobb soil is mainly Bailey greasewood, shadscale, bottlebrush squirreltail, and desert needlegrass. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the stones on the surface.

The Pirouette soil is limited for roads because of the restricted depth to bedrock. The Osobb soil is limited for roads because of the restricted depth to bedrock, steepness of slope, and large stones. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soils create road hazards and increase maintenance cost.

The Pirouette soil is in capability subclass VIIs, nonirrigated, and in range site 27-18. The Osobb soil is in capability subclass VIIe, nonirrigated, and in range site 27-26.

793—Pirouette extremely stony very fine sandy loam, 15 to 30 percent slopes. This shallow, well drained soil is on plateaus and hillsides. It formed in residuum derived dominantly from andesite and basalt. Elevation is 4,200 to 5,300 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray extremely stony fine sandy loam about 4 inches thick. The subsoil averages very cobbly clay loam that is light brown. It is about 14 inches thick. The substratum is a hardpan that is cemented with silica and lime and is about 5 inches thick. Hard andesite is at a depth of 23 inches. Depth to the hardpan ranges from 11 to 20 inches. Depth to bedrock ranges from 12 to 23 inches.

Included in this unit are about 5 percent Osobb soils on eroded side slopes (range site 27-26), 5 percent Rock outcrop on ridges and slope breaks, and 5 percent areas of Rubble land on steep slopes, mostly below the areas of Rock outcrop. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Pirouette soil is moderately slow. Available water capacity is very low. Effective rooting depth is 11 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected to a depth of 14 inches.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, shadscale, bottlebrush squirreltail, and bud sagebrush. The present vegetation in most areas is mainly Bailey greasewood, shadscale, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the low average annual precipitation and the stones on the surface.

This unit is limited for roads because of steepness of slope and restricted depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIe, nonirrigated, and in range site 27-18.

802—Loomer-Zephan-Olac association. This map unit is on rolling hills. Slope is 15 to 50 percent. Elevation is 5,200 to 6,200 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 110 to 120 days.

This unit is 35 percent Loomer extremely cobbly loam, 15 to 30 percent slopes; 35 percent Zephan extremely cobbly loam, 15 to 50 percent slopes, eroded; and 20 percent Olac extremely stony loam, 15 to 50 percent slopes. The Loomer soil is on north-facing side slopes, the Zephan soil is on south-facing side slopes, and the Olac soil is on ridges.

Included in this unit are about 5 percent soils that are similar to Flex soils and are in concave areas (range site 26-16), 3 percent Theon soils on south-facing side slopes and ridges (range site 27-17), and 2 percent Veta soils in drainageways (range site 26-24). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Loomer soil is shallow and well drained. It formed in residuum derived dominantly from rhyolite. Typically, the surface layer is brown extremely cobbly loam about 4 inches thick. The subsoil is brown and dark yellowish brown extremely cobbly clay loam and extremely cobbly clay about 11 inches thick. Rhyolite is at a depth of 15 inches. Depth to bedrock ranges from 14 to 20 inches.

Permeability of the Loomer soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Zephan soil is moderately deep and well drained. It formed in colluvium derived dominantly from rhyolite and andesite. Typically, the surface layer is light brownish gray extremely cobbly loam about 2 inches thick. The subsoil averages very cobbly clay and very cobbly sandy clay that is brown and yellowish brown. It is about 35 inches thick. Weathered andesite is at a depth of 37 inches. Depth to weathered bedrock ranges from 25 to 40 inches.

Permeability of the Zephan soil is slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Olac soil is very shallow and well drained. It formed in residuum derived dominantly from rhyolite. Typically, the surface layer is grayish brown extremely stony loam about 4 inches thick. The subsoil is yellowish brown and dark yellowish brown extremely gravelly clay loam about 10 inches thick. Rhyolite is at a depth of 14 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Loomer soil is mainly low sagebrush, desert needlegrass, and Nevada ephedra. The present vegetation in most areas is mainly low sagebrush and desert needlegrass. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and the extremely cobbly surface layer.

The potential plant community on the Zephan soil is mainly low sagebrush, Thurber needlegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the extremely cobbly surface layer and steepness of slope in some areas.

The potential plant community on the Olac soil is mainly low sagebrush, Thurber needlegrass, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope in some areas, the extremely stony surface layer, and the very low available water capacity.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

The Loomer soil is limited for roads because of steepness of slope, restricted depth to bedrock, and large stones throughout the soil. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. Roads should be designed to minimize cuts because of the limited depth to bedrock.

The Zephan soil is limited for roads because of steepness of slope, low soil strength, and the content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface.

The Olac soil is limited for roads because of steepness of slope and restricted depth to bedrock. Roads should be designed to minimize cuts because of the limited depth to bedrock.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Loomer soil is in capability subclass VIIe, nonirrigated, and in range site 26-41. The Zephan soil is in capability subclass VIIs, nonirrigated, and in range site 26-25. The Olac soil is in capability subclass VIIs, nonirrigated, and in range site 26-25.

803—Loomer association. This map unit is on rolling hills. Slope is 15 to 50 percent. Elevation is 5,800 to 6,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Loomer extremely cobbly loam, 15 to 30 percent slopes, and 35 percent Loomer extremely cobbly loam, 30 to 50 percent slopes. The Loomer soil, 15 to 30 percent slopes, is on convex, south- and west-facing side slopes; and the Loomer soil,

30 to 50 percent slopes, is on north- and east-facing side slopes.

Included in this unit are about 10 percent Rock outcrop on ridges and steep slopes, 3 percent Theon soils on ridges and upper south-facing slopes (range site 27-17), and 2 percent gravelly soils on concave slopes (range site 26-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Loomer soil is shallow and well drained. It formed in residuum derived dominantly from rhyolite. The surface layer is brown extremely cobbly loam about 4 inches thick. The subsoil is brown and dark yellowish brown extremely cobbly clay loam and extremely cobbly clay about 11 inches thick. Rhyolite is at a depth of 15 inches. Depth to bedrock ranges from 14 to 20 inches.

Permeability of the Loomer soil, 15 to 30 percent slopes, is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

Permeability of the Loomer soil, 30 to 50 percent slopes, is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Loomer soil, 15 to 30 percent slopes, is mainly low sagebrush, desert needlegrass, and Nevada ephedra. The present vegetation in most areas is mainly low sagebrush and desert needlegrass. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the extremely cobbly surface layer and the very low available water capacity.

The potential plant community on the Loomer soil, 30 to 50 percent slopes, is mainly low sagebrush, Thurber needlegrass, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush, Thurber needlegrass, and Sandberg bluegrass. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope, the extremely cobbly surface layer, and very low available water capacity.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

This unit is limited for roads because of restricted depth to bedrock, steepness of slope, and large stones. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Roads should be designed to minimize cuts because of the limited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIe, nonirrigated. The Loomer soil, 15 to 30 percent slopes, is in range site 26-41, and the Loomer soil, 30 to 50 percent slopes, is in range site 26-25.

811—Trid-Drit association. This map unit is on mountain pediments. Slope is 4 to 50 percent. Elevation is 6,000 to 6,500 feet. The average annual precipitation is about 13 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 95 to 110 days.

This unit is 40 percent Trid sandy loam, 30 to 50 percent slopes; 30 percent Trid sand, 4 to 15 percent slopes; and 15 percent Drit coarse sandy loam, 30 to 50 percent slopes. The Trid sandy loam is on south-facing side slopes, the Trid sand is on pediments, and the Drit soil is on south-facing side slopes.

Included in this unit are about 5 percent deep, loamy soils on alluvial fans (range site 26-5), 5 percent Duco soils on mountain ridges (pinyon-juniper woodland), 3 percent clayey soils on terrace tops (range site 26-23), and 2 percent deep, loamy soils on concave side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Trid sandy loam is moderately deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown sandy loam about 4 inches thick. The subsoil is brown very gravelly sandy clay loam about 19 inches thick. Weathered granitic bedrock is at a depth of 23 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Trid sandy loam is moderately slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Trid sand is moderately deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown sand about 4 inches thick. The subsoil is yellowish brown very gravelly sandy clay loam about 19 inches thick. Weathered granitic bedrock is at a depth of 23 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Trid sand is moderately slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

The Drit soil is very deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the upper 9 inches of the surface layer is grayish brown and dark grayish brown coarse sandy loam and the lower 16 inches is brown gravelly coarse sandy loam. The subsoil is pale brown very gravelly coarse sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is pale brown very gravelly coarse sandy loam.

Permeability of the Drit soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Trid soils is mainly Thurber needlegrass, mountain big sagebrush, Indian ricegrass, and antelope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and Thurber needlegrass. The production of forage is limited by the very low available water capacity. The suitability of the Trid sandy loam for rangeland seeding is very poor. The main limitations are the steepness of slope and very low available water capacity. The suitability of the Trid sand for rangeland seeding is very poor. The main limitations are the sandy texture of the surface layer and the very low available water capacity.

The potential plant community on the Drit soil is mainly western wheatgrass, mountain brome, mountain big sagebrush, and basin wildrye. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and western needlegrass. The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is the steepness of slope.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Trid sandy loam and Drit soil are limited for roads because of the steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided for roads on the Trid sand, damage from frost heaving is minimized. Power equipment is needed to make cuts in the upper part of the bedrock. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Trid sandy loam is in capability subclass VIIe, nonirrigated, and in range site 26-46. The Trid sand is in capability subclass VIIs, nonirrigated, and in range site 26-46. The Drit soil is in capability subclass VIIe, nonirrigated, and in range site 26-5.

812—Trid-Roloc-Drit association. This map unit is on mountainsides and ridges. Slope is 15 to 50 percent. Elevation is 6,000 to 7,500 feet. The average annual precipitation is about 13 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 90 to 105 days.

This unit is 40 percent Trid very stony fine sandy loam, 30 to 50 percent slopes; 30 percent Roloc gravelly sandy loam, 15 to 50 percent slopes; and 15 percent Drit coarse sandy loam, 15 to 50 percent slopes. The Trid soil is on south- and west-facing side slopes, the Roloc soil is on ridges and convex, south-facing side slopes, and the Drit soil is on north-facing side slopes.

Included in this unit are about 5 percent soils that are similar to Duco soils and are on mountain ridges (pinyon-juniper woodland), 5 percent shallow soils on flat ridges (range site 26-23), 3 percent Rock outcrop on ridges and steep side slopes, and 2 percent deep, loamy soils on concave side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Trid soil is moderately deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown very stony fine sandy loam about 4 inches thick. The subsoil averages very gravelly sandy clay loam that is dark yellowish brown. It is about 19 inches thick. Weathered granitic bedrock is at a depth of 23 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Trid soil is moderately slow. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Roloc soil is shallow and well drained. It formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer is dark grayish brown and grayish brown gravelly sandy loam about 8 inches thick. The subsoil is pale brown very gravelly coarse sandy loam about 9 inches thick. Granitic bedrock is at a depth of 17 inches. Depth to bedrock ranges from 14 to 20 inches.

Permeability of the Roloc soil is moderate. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Drit soil is very deep and well drained. It formed in colluvium derived dominantly from granitic rock.

Typically, the upper 9 inches of the surface layer is dark grayish brown coarse sandy loam and the lower 16 inches is brown gravelly coarse sandy loam. The subsoil is brown very gravelly coarse sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is yellowish brown very gravelly coarse sandy loam.

Permeability of the Drit soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Trid and Roloc soil is mainly Thurber needlegrass, mountain big sagebrush, Indian ricegrass, and antelope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and Thurber needlegrass. The production of forage is limited by the very low available water capacity. The suitability of these soils for rangeland seeding is very poor. The main limitations are the steepness of slope and very low available water capacity.

The potential plant community on the Drit soil is mainly western needlegrass, mountain big sagebrush, mountain brome, and basin wildrye. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and western needlegrass. The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope in some areas.

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Because of the density of the pinyon and juniper trees in most areas, this unit can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

This unit is limited for roads because of steepness of slope in some areas. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Trid soil is in capability subclass VIIs, nonirrigated, and in range site 26-46. The Roloc soil is in capability subclass VIIe, nonirrigated, and in range site 26-46. The Drit soil is in capability subclass VIIe, nonirrigated, and in range site 26-5.

821—Badland. Badland consists of highly weathered water-laid tuff, diatomaceous earth, siltstone, and sandstone dissected by intermittent drainageways. It is essentially barren of vegetation. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is high.

822—Dumps, mine. Dumps, mine, consists of large areas of waste rock and overburden from mining operations. Reclamation of Dumps generally is not feasible because of the low average annual precipitation.

823—Gypsum land. Gypsum land consists of exposures of nearly pure soft gypsum. It supports little if any vegetation. The surface is unstable and erodes easily. Trafficability on Gypsum land is poor.

824—Pits, gravel. Pits, gravel, consists of open excavations from which gravel, sand, and other material have been removed for uses such as roadfill. These excavations support little if any vegetation.

825—Pits, mine. Pits, mine, consists of large open excavations from which ore-bearing rock has been removed. These excavations support little if any vegetation. Reclamation generally is not feasible.

826—Playas. Playas consists of undrained basins filled with stratified, nearly impervious sediment that contains sufficient salt to essentially prohibit the growth of vegetation. Areas of Playas are subject to soil blowing. Water stands on the surface of these areas after heavy rainfall.

827—Slickens. Slickens consists of accumulations of finely ground, chemically treated rock from ore mill operations. These accumulations are barren. They generally are confined to specially constructed basins, but in some places they have flowed over the basins and have been deposited on the surface of some soils.

831—Ister-Hyloc-Lunder association. This map unit is on mountains and associated alluvial fans. Slope is 8 to 50 percent. Elevation is 5,500 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 46 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 35 percent Ister extremely stony sandy loam, 30 to 50 percent slopes; 30 percent Hyloc very cobbly sandy loam, 15 to 30 percent slopes; and 20 percent Lunder very cobbly loam, 8 to 15 percent slopes. The Ister soil is on north- and east-facing mountainsides, the Hyloc soil is on south- and west-facing mountainsides, and the Lunder soil is on alluvial fans.

Included in this unit are about 10 percent Rock outcrop on ridges and very steep side slopes and 5 percent Shree soils on alluvial fans (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Ister soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from andesite. Typically, 40 to 80 percent of the surface

is covered with stones, cobbles, and pebbles. The surface layer is dark yellowish brown and light grayish brown extremely stony sandy loam about 17 inches thick. The subsoil is light yellowish brown very stony sandy clay loam about 21 inches thick. Hard bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of the Ister soil is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Hyloc soil is shallow and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is grayish brown very cobbly sandy loam about 5 inches thick. The subsoil is brown clay about 13 inches thick. Soft, weathered bedrock is at a depth of 18 inches. Hard andesite is at a depth of 24 inches. Depth to soft bedrock ranges from 14 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Permeability of the Hyloc soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Lunder soil is shallow and well drained. It formed in alluvium derived dominantly from andesite. Typically, the surface layer is brown very cobbly loam about 7 inches thick. The subsoil is brown cobbly clay about 9 inches thick. The next layer is a hardpan that is cemented with silica and lime and is about 9 inches thick. The substratum to a depth of 60 inches or more is extremely cobbly sandy loam that is weakly to strongly cemented with silica and lime. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Lunder soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for wood products, livestock grazing, wildlife habitat, and watershed.

The potential plant community on the Ister soil is mainly western needlegrass, mountain big sagebrush, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush and antelope bitterbrush with a heavy invasion of pinyon and juniper trees. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope and the extremely stony surface layer. Because of the density of the pinyon and juniper trees in most areas, this soil can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

The potential plant community on the Lunder soil is mainly low sagebrush, Thurber needlegrass, and Canby bluegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and the very cobbly surface layer.

The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the Ister and Lunder soils from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Hyloc soil can produce 3 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope and the very cobbly surface layer. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The Ister soil is limited for roads because of steepness of slope. The Hyloc soil is limited for roads because of steepness of slope and low soil strength resulting from the content of highly expansive clay. The Lunder soil is limited for roads because of shallow depth to the hardpan and the content of cobbles and stones. Deep cuts in the Lunder soil should be avoided because of the underlying hardpan. Construction and maintenance cost can be reduced if areas of the clayey Hyloc soil are avoided. Roads should be constructed in the less sloping areas of the unit.

The Ister soil is in capability subclass VIIs, nonirrigated, and in range site 26-5. The Lunder soil is in capability subclass VIIs, nonirrigated, and in range site 26-23. The Hyloc soil is in capability subclass VIIe, nonirrigated.

841—Bradshaw-Hartig association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 7,600 to 9,000 feet. The average annual precipitation is about 16 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 50 percent Bradshaw extremely stony loam, 15 to 50 percent slopes, and 35 percent Hartig very gravelly sandy loam, 30 to 50 percent slopes. The Bradshaw soil is on north- and east-facing side slopes, and the Hartig soil is on south- and west-facing side slopes.

Included in this unit are about 6 percent Shree soils on the bottoms of draws (range site 26-10), 5 percent Lunder soils on plateaus (range site 26-23), and 4 percent Rock outcrop on steep side slopes and ridges. Included areas make up about 15 percent of the total

acreage. The percentage varies from one area to another.

The Bradshaw soil is deep and well drained. It formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown to brown extremely stony loam about 15 inches thick. The subsoil is pale brown very cobbly loam about 9 inches thick. The upper 4 inches of the substratum is pale brown extremely cobbly loam, and the lower part to a depth of 43 inches is light gray extremely cobbly loam. Fractured andesite is at a depth of 43 inches. Depth to hard bedrock ranges from 40 to 60 inches or more.

Permeability of the Bradshaw soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 40 to 60 inches or more. Runoff is medium or rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Hartig soil is deep and very deep and is well drained. It formed in colluvium and residuum derived dominantly from andesite. Typically, the surface layer is brown very gravelly sandy loam about 14 inches thick. The subsoil is pale brown very gravelly sandy loam about 10 inches thick. The upper 8 inches of the substratum is very pale brown very gravelly sandy loam, and the lower part to a depth of 60 inches is light gray very gravelly sandy loam. Bedrock is at a depth of 60 inches. Depth to bedrock ranges from 40 to 70 inches or more.

Permeability of the Hartig soil is moderate. Available water capacity is low. Effective rooting depth is 40 to 70 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Bradshaw soil is mainly curlleaf mountainmahogany, mountain big sagebrush, and basin wildrye. The present vegetation in most areas is mainly curlleaf mountainmahogany and mountain big sagebrush. The production of forage is limited by the very low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the steepness of slope in some areas, the extremely stony surface layer, and the very low available water capacity of the surface layer.

The potential plant community on the Hartig soil is mainly western needlegrass, mountain brome, mountain big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush and antelope bitterbrush. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope and the very gravelly texture of the surface layer.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Grazing should be delayed until the soils are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

The Bradshaw soil is limited for roads because of steepness of slope and the content of cobbles and stones. The Hartig soil is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated. The Bradshaw soil is in range site 26-9, and the Hartig soil is in range site 26-5.

851—Tenpin-Shree association. This map unit is on old alluvial fans. Slope is 4 to 8 percent. Elevation is 6,000 to 7,600 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 55 percent Tenpin very gravelly loam and 35 percent Shree very gravelly loam. The Tenpin soil is in slightly convex areas of old dissected alluvial fans, and the Shree soil is in plane or slightly concave areas of alluvial fans.

Included in this unit are about 5 percent Veta soils in drainageways (range site 26-34) and 5 percent loamy soils on inset alluvial fans (range site 26-10). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Tenpin soil is very deep and well drained. It formed in alluvium derived dominantly from pyroclastic and granitic rock. Typically, the surface layer is brown very gravelly loam about 7 inches thick. The upper 14 inches of the subsoil is pale brown and brown and averages extremely gravelly clay, and the lower 12 inches is light brown and light yellowish brown extremely gravelly clay. The substratum to a depth of 60 inches or more is pale brown extremely cobbly sandy loam.

Permeability of the Tenpin soil is slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Shree soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is brown very gravelly loam about 10 inches thick. The upper 11 inches of the subsoil is light yellowish brown very gravelly clay loam, and the lower 5 inches is pale brown extremely gravelly sandy clay loam.

The substratum to a depth of 60 inches or more is very pale brown extremely gravelly sandy loam.

Permeability of the Shree soil is moderately slow above the substratum and moderately rapid through it. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly for livestock grazing and wildlife habitat. It is also used for pasture in some areas.

The potential plant community on the Tenpin soil is mainly low sagebrush, Thurber needlegrass, bottlebrush squirreltail, and Sandberg bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass. The potential plant community on the Shree soil is mainly Thurber needlegrass, Wyoming big sagebrush, basin wildrye, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and Douglas rabbitbrush. The production of forage is limited by the moderate average annual precipitation and low available water capacity.

The suitability of this unit for rangeland seeding is poor. The main limitations are the low available water capacity and the very gravelly texture of the surface layer. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is poorly suited to irrigated hay and pasture. The main limitations are slope, the low available water capacity, and the very gravelly texture of the surface layer. If furrow or corrugation irrigation systems are used, runs should be on the contour or across the slope.

Stones and cobbles on the surface of the Tenpin soil make the construction of roads difficult. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. It is difficult to establish and maintain structures that can protect roads on the Shree soil from flash flooding. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. The Tenpin soil is in range site 26-25, and the Shree soil is in range site 26-10.

861—Shree very gravelly loam, 4 to 8 percent slopes. This very deep, well drained soil is on the upper part of alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 6,000 to 7,500 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

Typically, the surface layer is brown very gravelly loam about 10 inches thick. The upper 11 inches of the subsoil averages very gravelly clay loam that is light yellowish brown, and the lower 5 inches is pale brown extremely gravelly sandy clay loam. The substratum to a depth of 60 inches or more is very pale brown very gravelly sandy loam.

Included in this unit are about 6 percent Fulstone soils on the tops of alluvial fans (range site 26-25), 6 percent Hunewill soils on side slopes of the dissected part of alluvial fans (range site 26-16), and 3 percent Duco soils on toe slopes of mountain spur ridges (pinyon-juniper woodland). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Shree soil is moderately slow above the substratum and moderately rapid through it. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is moderate, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Wyoming big sagebrush, antelope bitterbrush, Thurber needlegrass, and basin wildrye. The present vegetation in most areas is mainly pinyon trees with an understory of Wyoming big sagebrush, antelope bitterbrush, and green rabbitbrush. The production of forage is limited by the moderate average annual precipitation and low available water capacity. The suitability of this unit for rangeland seeding is poor. The main limitations are the very gravelly texture of the surface layer and low available water capacity. Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

It is difficult to establish and maintain structures that can protect roads on this unit from flash flooding. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-10.

871—Nall-Luppino-Hotsprings association. This map unit is on hills and associated alluvial fans. Slope is 2 to 15 percent. Elevation is 5,500 to 7,000 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 55 percent Nall gravelly sandy loam, 8 to 15 percent slopes; 20 percent Luppino gravelly sandy loam, 8 to 15 percent slopes; and 15 percent Hotsprings loamy sand, 2 to 8 percent slopes. The Nall soil is on dissected pediments, the Luppino soil is on old pediments, and the Hotsprings soil is on alluvial fans, in drainageways, and on lower lying side slopes.

Included in this unit are about 5 percent Rock outcrop on ridges and dissected side slopes, 4 percent Berit soils

on hilltops (pinyon-juniper woodland), and 1 percent wet, dark colored soils on canyon bottoms that have springs or seeps (aspen woodland). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Nall soil is shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer averages brown gravelly sandy loam about 8 inches thick. Weathered bedrock is at a depth of 8 inches. Hard bedrock is at a depth of 20 inches. Depth to soft bedrock ranges from 7 to 20 inches. Depth to hard granitic bedrock ranges from 20 to 30 inches.

Permeability of the Nall soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 7 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Luppino soil is shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is dark brown gravelly sandy loam about 7 inches thick. The subsoil is yellowish brown sandy clay loam about 5 inches thick. Decomposed granitic bedrock is at a depth of 12 inches. Hard bedrock is at a depth of 23 inches. Depth to weathered bedrock ranges from 12 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Permeability of the Luppino soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Hotsprings soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is brown loamy sand about 4 inches thick. The underlying material to a depth of 60 inches or more is yellowish brown gravelly loamy sand.

Permeability of the Hotsprings soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Nall soil is mainly pinyon and juniper woodland. The present vegetation in most areas is mainly pinyon trees with an understory of Wyoming big sagebrush, antelope bitterbrush, and currant. This soil is well suited to the production of pinyon trees. It can produce 8 cords per acre in a stand of trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting timber are seedling mortality and plant competition.

The potential plant community on the Luppino soil is mainly needleandthread, Wyoming big sagebrush, Thurber needlegrass, and bottlebrush squirreltail. The present vegetation in most areas is mainly Indian ricegrass, needleandthread, Thurber needlegrass, and Wyoming big sagebrush. The production of forage is limited by the low average annual precipitation and the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth.

The potential plant community on the Hotsprings soil is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is mainly Indian ricegrass, bottlebrush squirreltail, and Wyoming big sagebrush. The production of forage is limited by the low average annual precipitation and the low available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitations are the low average annual precipitation and the low available water capacity.

Grazing should be delayed until the Luppino and Hotsprings soils are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

If this unit is used for roads, power equipment is needed to make cuts in the upper part of the bedrock in the Nall and Luppino soils. Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclass VIIs, nonirrigated. The Luppino soil is in range site 26-20, and the Hotsprings soil is in range site 26-16.

881—Ravenell Variant-Devils Variant association. This map unit is on high plateaus. Slope is 4 to 15 percent. Elevation is 7,800 to 8,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 45 percent Ravenell Variant gravelly sandy loam and 40 percent Devils Variant gravelly loam. The Ravenell Variant soil is on convex side slopes, and the Devils Variant soil is on concave side slopes.

Included in this unit are about 10 percent deep, loamy soils in swales (range site 26-38) and 5 percent Rock outcrop on ridges and upper side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Ravenell Variant soil is shallow and well drained. It formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer averages pale brown gravelly sandy loam and is about 7 inches thick. The upper 4 inches of the subsoil is yellowish brown gravelly clay, and the lower 4 inches is yellowish brown very gravelly clay. Weathered granitic bedrock is at a depth of 15 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of the Ravenell Variant soil is slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the

hazard of water erosion is slight. The hazard of soil blowing is slight.

The Devils Variant soil is moderately deep and well drained. It formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer is grayish brown and brown gravelly loam about 10 inches thick. The upper 6 inches of the subsoil is light yellowish brown gravelly sandy clay loam, and the lower 14 inches is brown gravelly sandy clay loam. Decomposed granitic bedrock is at a depth of 30 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Devils Variant soil is moderately slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Ravenell Variant soil is mainly low sagebrush, Thurber needlegrass, pine bluegrass, and antelope bitterbrush. The present vegetation in most areas is mainly low sagebrush, pine bluegrass, and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the restricted rooting depth and very low available water capacity.

The potential plant community on the Devils Variant soil is mainly western needlegrass, mountain big sagebrush, mountain brome, and antelope bitterbrush. The present vegetation in most areas is mainly mountain big sagebrush, Sandberg bluegrass, western needlegrass, and antelope bitterbrush. The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is fair.

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Seeding of large areas of the more favorable Devils Variant soil is difficult because of the pattern in which it occurs with areas of the less favorable Ravenell Variant soil.

The Ravenell Variant soil is limited for roads because of low soil strength and the content of highly expansive clay. Cutting and filling are reduced by building roads in the less sloping areas of the Devils Variant soil. Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. When building roads on this unit, construction and maintenance cost can be reduced if areas of the clayey Ravenell Variant soil are avoided.

The Ravenell Variant soil is in capability subclass VIIs, nonirrigated, and in range site 26-39. The Devils Variant soil is in capability subclass VIs, nonirrigated, and in range site 26-5.

891—Berit-Shoken association, moderately steep. This map unit is on mountainsides and rolling hills. Slope is 15 to 50 percent. Elevation is 4,800 to 6,800 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 60 percent Berit very gravelly loamy sand, 15 to 30 percent slopes, eroded, and 30 percent Shoken very gravelly coarse sandy loam, 30 to 50 percent slopes. The Berit soil is on south-facing side slopes and rolling hills, and the Shoken soil is on north-facing side slopes.

Included in this unit are about 5 percent Holbrook soils on canyon bottoms and short alluvial fans on lower lying side slopes (range site 26-10) and 5 percent Rock outcrop on ridges and steep side slopes. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Berit soil is very shallow and somewhat excessively drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light gray very gravelly loamy sand about 2 inches thick. The subsoil is brown very gravelly sandy clay loam about 3 inches thick. Weathered granitic bedrock is at a depth of 5 inches. Depth to bedrock ranges from 4 to 12 inches.

Permeability of the Berit soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Shoken soil is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is brown very gravelly coarse sandy loam about 5 inches thick. Soft, weathered granitic bedrock is at a depth of 5 inches. Unweathered granitic bedrock is at a depth of 26 inches. Depth to weathered bedrock ranges from 3 to 10 inches.

Permeability of the Shoken soil is rapid. Available water capacity is very low. Effective rooting depth is 3 to 10 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Berit soil is mainly desert needlegrass, antelope bitterbrush, Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, desert needlegrass, and green ephedra. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth.

The potential plant community on the Shoken soil is mainly Wyoming big sagebrush, desert needlegrass, antelope bitterbrush, and green ephedra. The present

vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and scattered pinyon trees. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope, very low available water capacity, and restricted rooting depth.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-18.

892—Berit-Shoken association, steep. This map unit is on hills. Slope is 30 to 75 percent. Elevation is 4,800 to 6,800 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 90 to 110 days.

This unit is 45 percent Berit very gravelly loamy sand, 30 to 50 percent slopes, eroded, and 40 percent Shoken very gravelly coarse sandy loam, 50 to 75 percent slopes. The Berit soil is on south-facing side slopes and narrow ridges, and the Shoken soil is on north-facing side slopes.

Included in this unit are about 10 percent Rock outcrop on ridges and steep side slopes and 5 percent Holbrook soils on canyon bottoms and short alluvial fans on lower lying side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Berit soil is very shallow and somewhat excessively drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light gray very gravelly loamy sand about 2 inches thick. The subsoil is brown very gravelly sandy clay loam about 3 inches thick. Weathered granitic bedrock is at a depth of 5 inches. Depth to bedrock ranges from 4 to 12 inches.

Permeability of the Berit soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Shoken soil is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is brown very gravelly coarse sandy loam about 5 inches thick. Weathered granite is at a depth of 5 inches. Unweathered granite is at a depth of 26 inches. Depth to weathered bedrock ranges from 3 to 10 inches.

Permeability of the Shoken soil is rapid. Available water capacity is very low. Effective rooting depth is 3 to 10 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Berit soil is mainly desert needlegrass, antelope bitterbrush, Wyoming big sagebrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, desert needlegrass, and green ephedra. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope, very low available water capacity, and restricted rooting depth.

The potential plant community on the Shoken soil is mainly Wyoming big sagebrush, desert needlegrass, antelope bitterbrush, and green ephedra. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, Indian ricegrass, and scattered pinyon trees. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope, very low available water capacity, and restricted rooting depth.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-18.

893—Berit-Saralegui association. This map unit is on low, rolling hills and associated alluvial fans. Slope is 4 to 15 percent. Elevation is 6,000 to 6,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 90 to 100 days.

This unit is 60 percent Berit very gravelly loamy sand, 4 to 15 percent slopes, and 30 percent Saralegui loamy sand, 4 to 8 percent slopes. The Berit soil is on convex rolling hills, and the Saralegui soil is on concave side slopes and alluvial fans.

Included in this unit are about 5 percent Nall soils on convex hillsides (pinyon-juniper woodland) and 5 percent Holbrook soils in drainageways and on short alluvial fans (range site 26-10). Included areas make up about 10

percent of the total acreage. The percentage varies from one area to another.

The Berit soil is very shallow and somewhat excessively drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is brown very gravelly loamy sand about 3 inches thick. The upper 2 inches of the subsoil is brown extremely gravelly sandy clay loam, and the lower 2 inches is yellowish brown extremely gravelly sandy clay loam. Weathered granitic bedrock is at a depth of 7 inches. Depth to bedrock ranges from 4 to 12 inches.

Permeability of the Berit soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Saralegui soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is grayish brown loamy sand about 5 inches thick. The upper 18 inches of the subsoil is yellowish brown sandy loam, and the lower 9 inches is brown sandy loam. The substratum to a depth of 60 inches or more is stratified, light brown and brown sand and loamy sand.

Permeability of the Saralegui soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used for wood products, livestock grazing, and wildlife habitat.

The potential plant community on the Berit soil is mainly pinyon and juniper woodland. The present vegetation in most areas is mainly pinyon trees with an understory of Wyoming big sagebrush and antelope bitterbrush. The Berit soil is suited to the production of pinyon trees. It can produce 8 cords per acre in a stand of trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting timber are the low average annual precipiation and the very low available water capacity.

The potential plant community on the Saralegui soil is mainly Thurber needlegrass, Wyoming big sagebrush, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and green ephedra. The production of forage is limited by the low average annual precipitaion. The suitability of this soil for rangeland seeding is poor. The main limitations are the sandy texture of the surface layer and the low average annual precipitation.

Seeding of large areas of the more favorable Saralegui soils in this unit is difficult because of the pattern in which they occur with areas of the less favorable Berit soils.

If roads are constructed on this unit, power equipment is needed to make cuts in the upper part of the bedrock in the Berit soil. If surface drainage and a stable base are provided, damage from frost heaving is minimized. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIIs, nonirrigated. The Saralegui soil is in range site 26-16.

911—Fulstone Variant-Devils-Glean association. This map unit is on high plateaus. Slope is 0 to 15 percent. Elevation is 8,600 to 9,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 44 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 50 percent Fulstone Variant extremely cobbly loam, 0 to 8 percent slopes; 25 percent Devils very cobbly loam, 4 to 15 percent slopes; and 20 percent Glean cobbly loam, 8 to 15 percent slopes. The Fulstone Variant soil is in plane, slightly convex areas; the Devils soil is in rolling, convex areas; and the Glean soil is in concave colluvial draws and swales.

Included in this unit is about 5 percent Rock outcrop on ridges.

The Fulstone Variant soil is moderately deep and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is grayish brown extremely cobbly loam about 5 inches thick. The subsoil averages brown and yellowish brown clay or gravelly clay and is about 20 inches thick. The next layer is a hardpan that is strongly cemented with silica and lime and is about 15 inches thick. Depth to the hardpan ranges from 20 to 30 inches.

Permeability of the Fulstone Variant soil is slow. Available water capacity is low. Effective rooting depth is 20 to 30 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Devils soil is moderately deep and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is grayish brown very cobbly loam about 7 inches thick. The subsoil is brown very gravelly clay loam about 15 inches thick. Weathered andesite is at a depth of 22 inches. Unweathered bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 36 inches. Depth to hard bedrock ranges from 22 to 40 inches.

Permeability of the Devils soil is slow. Available water capacity is low. Effective rooting depth is 20 to 36 inches. Runoff is slow or medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Glean soil is deep and very deep and is well drained. It formed in alluvium and colluvium derived from various kinds of rock. Typically, the surface layer is brown cobbly loam about 24 inches thick. The underlying material to a depth of 51 inches is pale brown very cobbly loam. Unweathered bedrock is at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches or more.

Permeability of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Fulstone Variant and Devils soils is mainly low sagebrush, Thurber needlegrass, antelope bitterbrush, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and antelope bitterbrush. The production of forage is limited by the low available water capacity and the low soil temperatures. The suitability of these soils for rangeland seeding is very poor. The main limitations are the large amount of cobbles on the surface.

The potential plant community on the Glean soil is mainly western needlegrass, mountain big sagebrush, and spike fescue. The present vegetation in most areas is mainly mountain big sagebrush, western needlegrass, and antelope bitterbrush. The production of forage is limited by the low soil temperatures. The suitability of this soil for rangeland seeding is fair. The main limitation is the amount of cobbles in the surface layer.

Grazing should be delayed until the soils in this unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

The Fulstone Variant soil is limited for roads because of low soil strength and the content of highly expansive clay. Roads should be provided with a stable base and an adequate wearing surface. If surface drainage and a stable base are provided, damage from frost heaving on the Devils and Glean soils is minimized. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

The Fulstone Variant and Devils soils are in capability subclass VIIs, nonirrigated, and in range site 26-39. The Glean soil is in capability subclass VIs, nonirrigated, and in range site 26-38.

921—Glean-Devils association. This map unit is on high plateaus. Slope is 4 to 15 percent. Elevation is 8,600 to 9,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 50 percent Glean gravelly loam, 8 to 15 percent slopes, and 40 percent Devils very cobbly loam, 4 to 15 percent slopes. The Glean soil is in concave colluvial draws and swales, and the Devils soil is on convex side slopes.

Included in this unit are about 5 percent Fulstone Variant soils on old alluvial fans (range site 26-39) and 5 percent Rock outcrop, mainly on ridges. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Glean soil is very deep and deep and is well drained. It formed in alluvium and colluvium derived from various kinds of rock. Typically, the surface layer is brown gravelly loam about 14 inches thick. The underlying material to a depth of 60 inches or more is brown and pale brown very cobbly loam. Depth to bedrock ranges from 40 to 70 inches.

Permeability of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Devils soil is moderately deep and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is grayish brown very cobbly loam about 7 inches thick. The subsoil is yellowish brown very gravelly clay loam about 15 inches thick. Weathered andesite is at a depth of 22 inches. Hard bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 36 inches. Depth to hard bedrock ranges from 22 to 40 inches.

Permeability of the Devils soil is slow. Available water capacity is low. Effective rooting depth is 20 to 36 inches. Runoff is slow or medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Glean soil is mainly mountain big sagebrush, antelope bitterbrush, western needlegrass, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, western needlegrass, and snowberry. The production of forage is limited by the moderate available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is fair.

The potential plant community on the Devils soil is mainly low sagebrush, Thurber needlegrass, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush, pine bluegrass, and bottlebrush squirreltail. The production of forage is limited by the low available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is the amount of cobbles in the surface layer. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

Cutting and filling are reduced by building roads in the less sloping areas of the unit. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

The Glean soil is in capability subclass VIc, nonirrigated, and in range site 26-5. The Devils soil is in capability subclass VIIs, nonirrigated, and in range site 26-39.

922—Glean-Devils-Rock outcrop association. This map unit is on colluvial side slopes and plateaus. Slope is 15 to 30 percent. Elevation is 8,600 to 9,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 35 percent Glean gravelly loam, 15 to 30 percent slopes; 30 percent Devils very cobbly loam, 15 to 30 percent slopes; and 20 percent Rock outcrop. The Glean soil is in concave colluvial swales and draws, the Devils soil is on convex side slopes, and the Rock outcrop is on ridges.

Included in this unit are about 10 percent Fulstone Variant soils on old alluvial fans (range site 26-39) and 5 percent Rubble land on steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Glean soil is very deep and deep and is well drained. It formed in alluvium and colluvium derived from various kinds of rock. Typically, the surface layer is brown gravelly loam about 14 inches thick. The underlying material to a depth of 51 inches is pale brown very cobbly loam. Unweathered bedrock is at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches or more.

Permeability of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Devils soil is moderately deep and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is grayish brown very cobbly loam about 7 inches thick. The subsoil is brown very gravelly clay loam about 15 inches thick. Weathered andesite is at a depth of 22 inches. Hard bedrock is at a depth of 30 inches. Depth to weathered bedrock ranges from 20 to 36 inches. Depth to hard bedrock ranges from 22 to 40 inches.

Permeability of the Devils soil is slow. Available water capacity is low. Effective rooting depth is 20 to 36 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of andesite.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Glean soil is mainly mountain big sagebrush, antelope bitterbrush, snowberry, mountain brome, and western needlegrass. The present vegetation in most areas is mainly mountain big sagebrush, western needlegrass, antelope bitterbrush, and snowberry. The production of forage is limited by the moderate available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is fair.

The potential plant community on the Devils soil is mainly low sagebrush, Thurber needlegrass, and pine bluegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and antelope bitterbrush. The production of forage is limited by the low available water capacity and low soil temperature. The suitability of this soil for rangeland seeding is very poor. The main limitation is the amount of cobbles in the surface layer. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

Grazing should be delayed until the soil is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Glean soil is in capability subclass VIe, nonirrigated, and in range site 26-5. The Devils soil is in capability subclass VIIs, nonirrigated, and in range site 26-39.

923—Glean-Ticino-Hartig association. This map unit is on mountains. Slope is 30 to 50 percent. Elevation is 7,600 to 9,000 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 40 percent Glean very gravelly sandy loam, 25 percent Ticino extremely gravelly sandy loam, and 20 percent Hartig very gravelly sandy loam. The Glean soil is on north-facing side slopes, the Ticino soil is on upper south-facing side slopes and on ridges, and the Hartig soil is on lower north-facing side slopes.

Included in this unit are about 10 percent Rubble land mainly on very steep, south-facing side slopes and 5 percent Rock outcrop on ridges and very steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Glean soil is deep and very deep and is well drained. It formed in alluvium and colluvium derived from various kinds of rock. Typically, the surface layer is brown very gravelly sandy loam about 14 inches thick. The underlying material to a depth of 51 inches or more is pale brown very cobbly loam. Unweathered bedrock is

at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches.

Permeability of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Ticino soil is moderately deep and well drained. It formed in residuum derived dominantly from rhyolite. Typically, the surface layer is very dark grayish brown extremely gravelly sandy loam about 12 inches thick. The subsoil is brown gravelly loam about 16 inches thick. Highly fractured rhyolite is at a depth of 28 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Ticino soil is moderate. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Hartig soil is very deep and deep and is well drained. It formed in residuum derived dominantly from andesite and rhyolite. Typically, the surface layer is brown to light gray very gravelly sandy loam about 14 inches thick. The subsoil is pale brown very gravelly sandy loam about 10 inches thick. The substratum to a depth of 60 inches or more is very pale brown very gravelly sandy loam. Depth to bedrock ranges from 40 to 70 inches.

Permeability of the Hartig soil is moderate. Available water capacity is low. Effective rooting depth is 40 to 70 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Glean soil is mainly mountain big sagebrush, antelope bitterbrush, western needlegrass, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, snowberry, and antelope bitterbrush. The production of forage is limited by the moderate available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope.

The potential plant community on the Ticino soil is mainly curlleaf mountainmahogany, mountain big sagebrush, common snowberry, and pine bluegrass. The present vegetation in most areas is mainly curlleaf mountainmahogany, mountain big sagebrush, and bottlebrush squirreltail. The production of forage is limited by the low available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope.

The potential plant community on the Hartig soil is mainly western needlegrass, mountain big sagebrush, mountain brome, and basin wildrye. The present vegetation in most areas is mainly mountain big sagebrush, green ephedra, and singleleaf pinyon. The production of forage is limited by the low available water capacity and low soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Glean and Hartig soils are in range site 26-5, and the Ticino soil is in range site 26-9.

932—Shoken-Rock outcrop association. This map unit is on hills and mountains. Slope is 50 to 75 percent. Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 100 to 110 days.

This unit is 65 percent Shoken very gravelly coarse sandy loam, 50 to 75 percent slopes, and 20 percent Rock outcrop. The Shoken soil is on side slopes, and the Rock outcrop is on extremely steep side slopes and on ridges.

Included in this unit are about 10 percent Chill soils on broad ridgetops (range site 26-11) and 5 percent Veta soils on short alluvial fans and in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Shoken soil is very shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, this soil is pale brown very gravelly coarse sandy loam about 5 inches deep over soft, weathered granitic bedrock. Hard bedrock is at a depth of 26 inches. Depth to soft bedrock ranges from 3 to 10 inches.

Permeability of the Shoken soil is rapid. Available water capacity is very low. Effective rooting depth is 3 to 10 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of granitic bedrock and areas where soil material is less than 4 inches thick over bedrock. These areas support very little if any vegetation.

This unit is used mainly for wildlife habitat. It is also used for limited livestock grazing.

The potential plant community on the Shoken soil is mainly Wyoming big sagebrush, antelope bitterbrush, Thurber needlegrass, and desert needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, desert needlegrass, and antelope bitterbrush. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness

of slope, restricted rooting depth, and very low available water capacity. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this soil from excessive erosion and to prevent overgrazing in the less sloping areas.

This unit is limited for roads because of steepness of slope and the areas of Rock outcrop. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Shoken soil is in capability subclass VIIs, nonirrigated, and in range site 26-18.

951—Koontz-Ravenell-Haar association. This map unit is on foothills and terraces. Slope is 8 to 30 percent. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 45 percent Koontz very gravelly sandy loam, 8 to 15 percent slopes; 20 percent Ravenell very gravelly loam, 8 to 15 percent slopes; and 20 percent Haar gravelly loam, 15 to 30 percent slopes. The Koontz soil is on foothills and upper side slopes, the Ravenell soil is on the tops of terraces and on side slopes, and the Haar soil is on dissected side slopes of terraces.

Included in this unit are about 7 percent Fulstone soils on south-facing side slopes (range site 26-25), 5 percent Nosrac soils on concave, north-facing side slopes (range site 26-5), and 3 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Koontz soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from metavolcanic rock. Typically, 60 to 80 percent of the surface is covered with pebbles. The surface layer is grayish brown very gravelly sandy loam about 2 inches thick. The subsoil is yellowish brown very gravelly clay loam about 15 inches thick. Weathered bedrock is at a depth of 17 inches. Depth to weathered bedrock ranges from 8 to 20 inches.

Permeability of the Koontz soil is moderately slow. Available water capacity is very low. Effective rooting depth is 8 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Ravenell soil is very shallow and well drained. It formed in alluvium derived dominantly from mixed igneous rock over Tertiary sediment. Typically, 40 to 70 percent of the surface is covered with pebbles, cobbles, and stones. The surface layer is grayish brown very gravelly loam about 3 inches thick. The subsoil is brown very gravelly clay about 4 inches thick. Weathered sandstone is at a depth of 7 inches. Unweathered sandstone is at a depth of 11 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of the Ravenell soil is slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Haar soil is very shallow and well drained. It formed in residuum derived dominantly from sandstone, siltstone, and mudstone. Typically, the surface layer is light brownish gray silt loam about 2 inches thick. The underlying material to a depth of 6 inches is light gray gravelly loam. Weathered sedimentary bedrock is at a depth of 6 inches. Depth to bedrock ranges from 4 to 10 inches.

Permeability of the Haar soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Koontz soil is mainly Thurber needlegrass, bottlebrush squirreltail, Wyoming big sagebrush, antelope bitterbrush, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, antelope bitterbrush, and bottlebrush squirreltail. The potential and present plant community on the Ravenell soil is mainly galleta, low sagebrush, and Indian ricegrass. The potential plant community on the Haar soil is mainly desert needlegrass, Wyoming big sagebrush, Indian ricegrass, and antelope bitterbrush. The present vegetation in most areas is mainly bottlebrush squirreltail, desert needlegrass, Wyoming big sagebrush, and Douglas rabbitbrush.

The production of forage on this unit is limited by the very low available water capacity and the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth. Grazing should be delayed until the soils are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

If surface drainage and a stable base are provided for roads on the Koontz soil, damage from frost heaving is minimized. The Haar soil is limited for roads because of steepness of slope. If roads are constructed on this unit, power equipment is needed to make cuts in the upper part of the bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the Koontz and Ravenell soils. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Koontz soil is in range site 26-15, the Ravenell soil is in range site 27-49, and the Haar soil is in range site 26-29.

961—Luppino gravelly sandy loam, 8 to 15 percent slopes. This shallow, well drained soil is on low hills. It formed in residuum derived dominantly from granitic bedrock. Elevation is 6,500 to 7,600 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 80 to 100 days.

Typically, the surface layer is brown gravelly sandy loam and loam about 7 inches thick. The subsoil is yellowish brown sandy clay loam about 5 inches thick. Weathered granite is at a depth of 12 inches. Hard bedrock is at a depth of 21 inches. Depth to weathered granite ranges from 12 to 20 inches. Depth to hard bedrock ranges from 20 to 30 inches.

Included in this unit is about 10 percent Nall soils on knolls (pinyon-juniper woodland).

Permeability of this Luppino soil is moderately slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly needleandthread, Thurber needlegrass, and Wyoming big sagebrush. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, needleandthread, and Indian ricegrass. The production of forage is limited by the very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth.

Cutting and filling are reduced by building roads in the less sloping areas of the unit. Power equipment is needed to make cuts in the upper part of the bedrock. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-20.

971—Minneha-Drit-Rock outcrop association. This map unit is on mountains. Slope is 50 to 75 percent. Elevation is 7,000 to 8,000 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 95 to 110 days.

This unit is 40 percent Minneha extremely stony sandy loam, 30 percent Drit extremely stony sandy loam, and 15 percent Rock outcrop. The Minneha soil is on south-facing, convex side slopes and on ridges and shoulders, and the Drit soil is on north- and east-facing side slopes.

Included in this unit are about 7 percent Roloc soils (range site 26-46), 6 percent Holbrook soils on alluvial fans and canyon bottoms (range site 26-10), and 2 percent wet, dark colored soils that support meadow vegetation. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Minneha soil is shallow and somewhat excessively drained. It formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer is dark grayish brown extremely stony sandy loam about 5 inches thick. The underlying material to a depth of 18 inches is grayish brown and pale brown and averages very gravelly sandy loam. Partially weathered bedrock is at a depth of 18 inches. Depth to bedrock ranges from 13 to 20 inches.

Permeability of the Minneha soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 13 to 20 inches. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Drit soil is very deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the surface is covered with pine needles and leaves about 3 inches thick. The surface layer is dark grayish brown extremely stony sandy loam about 9 inches thick. The subsoil is pale brown very gravelly coarse sandy loam about 10 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly coarse sandy loam.

Permeability of the Drit soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of granitic bedrock.

This unit is used for wood products, livestock grazing, and wildlife habitat.

The Minneha soil can produce 5 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the extreme stoniness of the surface layer, and the hazard of erosion. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The potential plant community on the Drit soil is mainly mountain big sagebrush, antelope bitterbrush, western needlegrass, and mountain brome. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and western needlegrass. Pinyon and juniper trees have invaded. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope and the extreme stoniness of the surface layer. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this soil from excessive erosion and to prevent overgrazing in the less sloping areas. Grazing should be delayed until the soil is

firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure. Because of the density of the pinyon and juniper trees in most areas, this soil can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

This unit is limited for roads because of steepness of slope and areas of Rock outcrop. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

The Minneha soil is in capability subclass VIIe, nonirrigated. The Drit soil is in capability subclass VIIs, nonirrigated, and in range site 26-5.

972—Minneha-Berit-Wile association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 6,800 to 7,800 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 85 to 105 days.

This unit is 30 percent Minneha extremely stony sandy loam, 30 to 50 percent slopes; 30 percent Berit extremely stony loam, 30 to 50 percent slopes; and 25 percent Wile gravelly sandy loam, 15 to 30 percent slopes. The Minneha soil is on north- and east-facing mountainsides, the Berit soil is on south-facing mountainsides, and the Wile soil is on ridges and upper south-facing mountainsides.

Included in this unit are about 10 percent Holbrook soils on stream terraces and alluvial fans (range site 26-10) and 5 percent Rock outcrop on ridges and steep side slopes. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Minneha soil is shallow and somewhat excessively drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is brown extremely stony sandy loam about 5 inches thick. The underlying material, to a depth of 18 inches, is very gravelly sandy loam. Weathered granitic bedrock is at a depth of 18 inches. Depth to bedrock ranges from 13 to 20 inches.

Permeability of the Minneha soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 13 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Berit soil is very shallow and somewhat excessively drained. It formed in residuum and colluvium derived dominantly from granitic rock. Typically, the surface layer is brown extremely stony loam about 3 inches thick. The subsoil is brown and yellowish brown extremely cobbly clay loam about 4 inches thick. Weathered granitic bedrock is at a depth of 7 inches. Depth to bedrock ranges from 4 to 12 inches.

Permeability of the Berit soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 12 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Wile soil is shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is dark grayish brown gravelly sandy loam about 7 inches thick. The subsoil averages brown gravelly clay and is about 11 inches thick. Soft, weathered granitic bedrock is at a depth of 18 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of the Wile soil is slow. Available water capacity is very low. Effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for wood products and wildlife habitat.

The Minneha soil can produce 5 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the extremely stony surface layer, and the hazard of erosion. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The Berit soil can produce 8 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are steepness of slope, the extreme stoniness of the surface layer, very shallow soil depth, and moderate available water capacity. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The Wile soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are limited access because of the surrounding steep and extremely stony Minneha and Berit soils.

This unit is limited for roads mainly because of the extreme stoniness of the surface layer and steepness of slope. The Wile soil is also limited by the content of highly expansive clay. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. When building roads on this unit, construction and maintenance cost can be reduced if areas of the clayey Wile soil are avoided.

The Minneha and Wile soils are in capability subclass VIIe, nonirrigated, and the Berit soil is in capability subclass VIIs, nonirrigated.

981—Ravenell very gravelly loam, 8 to 30 percent slopes. This very shallow, well drained soil is on rolling hills. It formed in alluvium derived from various kinds of rock and overlying Tertiary sediment. Elevation is 5,500 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 90 to 110 days.

Typically, the surface layer is grayish brown very gravelly loam about 3 inches thick. The subsoil is brown very gravelly sandy clay about 4 inches thick. Weathered sandstone is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Included in this unit are about 10 percent Haar soils on steep, eroded side slopes (range site 26-29) and 5 percent Rock outcrop on ridges and steep side slopes. Included areas make up about 15 percent of the total area. The percentage varies from one area to another.

Permeability of this Ravenell soil is slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly low sagebrush, galleta, and Indian ricegrass. The present vegetation in most areas is mainly low sagebrush, galleta, bottlebrush squirreltail, and desert needlegrass. The production of forage is limited by the low average annual precipitation and very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity.

This unit is limited for roads because of the moderately steep slopes in some areas. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-49.

982—Ravenell-Haar-Rock outcrop association. This map unit is on hills. Slope is 15 to 50 percent. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 40 percent Ravenell very gravelly loam, 15 to 30 percent slopes; 25 percent Haar gravelly loam, 30 to 50 percent slopes, and 20 percent Rock outcrop. The Ravenell soil is on hilltops and side slopes, the Haar soil is on eroded side slopes, and the Rock outcrop is on ridges and steep side slopes.

Included in this unit are about 9 percent Fulstone soils on remnants of alluvial fans (range site 26-25) and 6 percent Veta soils in drainageways (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Ravenell soil is very shallow and well drained. It formed in alluvium derived dominantly from mixed igneous rock overlying Tertiary sediment. Typically, the surface layer is grayish brown very gravelly loam about 3 inches thick. The subsoil is brown very gravelly clay about 4 inches thick. Weathered sandstone is at a depth of 7 inches. Depth to weathered bedrock ranges from 6 to 14 inches.

Permeability of the Ravenell soil is slow. Available water capacity is very low. Effective rooting depth is 6 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Haar soil is very shallow and well drained. It formed in residuum derived dominantly from sandstone, siltstone, and mudstone. Typically, the soil averages light gray gravelly loam. It is about 6 inches thick over soft siltstone. Depth to bedrock ranges from 4 to 10 inches.

Permeability of the Haar soil is moderate. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposed areas of Tertiary sediment.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Ravenell soil is mainly low sagebrush, galleta, and Indian ricegrass. The present vegetation in most areas is mainly low sagebrush, galleta, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity.

The potential plant community on the Haar soil is mainly desert needlegrass, Indian ricegrass, antelope bitterbrush, and Wyoming big sagebrush. The present vegetation in most areas is mainly bottlebrush squirreltail, desert needlegrass, spiny hopsage, and antelope bitterbrush. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and steepness of slope.

Livestock grazing should be managed to protect the unit from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the unit to produce plants suitable for grazing.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be

provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs. The Ravenell soil is in range site 27-49, and the Haar soil is in range site 26-29.

991—Roloc-Drit association. This map unit is on mountains. Slope is 50 to 75 percent. Elevation is 5,000 to 6,000 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 95 to 100 days.

This unit is 55 percent Roloc very gravelly sandy loam, eroded, and 35 percent Drit stony sandy loam. The Roloc soil is on ridges and convex side slopes, and the Drit soil is on concave side slopes.

Included in this unit are about 7 percent sandy soils on toe slopes of mountains and on short alluvial fans (range site 26-26) and 3 percent Rock outcrop on ridges and steep side slopes. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Roloc soil is shallow and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is grayish brown and dark grayish brown very gravelly sandy loam about 9 inches thick. The subsoil is grayish brown very gravelly coarse sandy loam about 8 inches thick. Weathered bedrock is at a depth of 17 inches. Depth to weathered bedrock ranges from 14 to 20 inches.

Permeability of the Roloc soil is moderate. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Drit soil is very deep and well drained. It formed in colluvium derived dominantly from granitic rock. Typically, the surface layer is dark grayish brown and dark brown stony sandy loam about 20 inches thick. The underlying material to a depth of 60 inches or more is brown very gravelly coarse sandy loam.

Permeability of the Drit soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Roloc soil is mainly Wyoming big sagebrush, green ephedra, desert needlegrass, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, green ephedra, and desert needlegrass. The production of forage is limited by the very low available water capacity, moderate average annual precipitation, and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitations are steepness of slope and the very low available water capacity.

The potential plant community on the Drit soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, antelope bitterbrush, and Sandberg bluegrass. The production of forage is limited by the low available water capacity and loss of moisture because of runoff. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Loss of the surface layer results in a severe decrease in productivity and in the potential of the Roloc soil to produce plants suitable for grazing. Grazing should be delayed until the soils in the unit are firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Roloc soil is in capability subclass VIIe, nonirrigated, and in range site 26-11. The Drit soil is in capability subclass VIIs, nonirrigated, and in range site 26-5.

1001—Rowel very cobbly sandy loam, 8 to 30 percent slopes. This shallow, well drained soil is on hillsides and mountainsides. It formed in residuum derived dominantly from andesite. Elevation is 5,600 to 6,600 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

Typically, the surface layer averages light brownish gray very cobbly sandy loam and is about 6 inches thick. The subsoil is brown extremely cobbly clay about 8 inches thick. Andesite is at a depth of 14 inches. Depth to bedrock ranges from 10 to 14 inches.

Included in this unit is about 10 percent Fulstone soils on old alluvial fan remnants (range site 26-25).

Permeability of this Rowel soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 14 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on this unit is mainly low sagebrush, galleta, and Indian ricegrass. The present vegetation in most areas is mainly low sagebrush, galleta, and bottlebrush squirreltail. The production of

forage is limited by the very low available water capacity and low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity.

This unit is limited for roads because of shallow depth to hard bedrock, the large amount of cobbles and stones, and steepness of slope in some areas. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-49.

1002—Rowel-Rock outcrop association. This map unit is on hills and low mountains. Slope is 30 to 50 percent. Elevation is 5,600 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 47 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 70 percent Rowel very stony sandy loam, 30 to 50 percent slopes, and 20 percent Rock outcrop. The Rowel soil is on hillsides and mountainsides, and the Rock outcrop is on ridges and very steep side slopes.

Included in this unit are about 5 percent Reno Variant soils on hilltops and rounded ridges (range site 27-49) and 5 percent ashy soils in small pockets on the leeward side of hills and mountains (pinyon-juniper woodland). Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Rowel soil is shallow and well drained. It formed in residuum derived dominantly from andesite. Typically, the surface layer is light brownish gray very stony sandy loam about 6 inches thick. The subsoil is brown very cobbly clay about 8 inches thick. Hard andesitic bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 14 inches.

Permeability of the Rowel soil is slow. Available water capacity is very low. Effective rooting depth is 10 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of andesite.

This unit is used mainly for livestock grazing. It is also used for wildlife habitat.

The potential plant community on the Rowel soil is mainly low sagebrush, galleta, and Indian ricegrass. The present vegetation in most areas is mainly low sagebrush, galleta, and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation, very low available water capacity, and loss of moisture because of runoff. Livestock grazing should be managed to protect the soil from excessive erosion. Loss of the surface layer results in a severe decrease in productivity and in the potential of the Rowel soil to produce plants suitable for grazing.

This unit is limited for roads because of the areas of Rock outcrop, steepness of slope, shallow depth to hard bedrock, and the large amount of cobbles and stones in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

The Rowel soil is in capability subclass VIIe, nonirrigated, and in range site 27-49.

1011—Smedley very gravelly sandy loam, 2 to 4 percent slopes. This shallow, well drained soil is on alluvial fans. It formed in alluvium derived from mixed igneous rock. Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray very gravelly sandy loam about 2 inches thick. The subsoil averages brown gravelly clay loam and is about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. The hardpan is at a depth of 14 to 20 inches.

Included in this unit are about 8 percent Ravenell soils on fan remnants (range site 27-49), 4 percent Malpais soils on inset alluvial fans (range site 27-18), and 3 percent Haar soils on eroded side slopes (range site 26-11). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Smedley soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly galleta, Bailey greasewood, shadscale, and Indian ricegrass. The present vegetation in most areas is mainly shadscale, Indian ricegrass, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the hardpan and low soil strength. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-15.

1012—Smedley stony sandy loam, 4 to 8 percent slopes. This shallow, well drained soil is on alluvial fans. It formed in alluvium derived from mixed igneous rocks. Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray stony sandy loam about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Included in this unit are about 8 percent Ravenell soils on fan remnants (range site 27-49), 4 percent Malpais soils on inset alluvial fans (range site 27-18), and 3 percent Haar soils on eroded side slopes (range site 26-29). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Smedley soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly galleta, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly galleta, Bailey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the hardpan and low soil strength. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-15.

1013—Smedley association, sloping. This map unit is on alluvial fans. Slope is 2 to 15 percent. Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Smedley very gravelly sandy loam that has slopes of 2 to 4 percent and 25 percent Smedley stony sandy loam that has slopes of 4 to 15 percent. The Smedley very gravelly sandy loam is on the tops of alluvial fans, and the Smedley stony sandy loam is on side slopes of alluvial fans.

Included in this unit are about 6 percent soils that are similar to Biddleman soils and are on side slopes (range site 27-15), 5 percent Malpais soils on inset alluvial fans (range site 27-18), and 4 percent Haar soils on eroded side slopes (range site 26-4). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The very gravelly Smedley soil is shallow and well drained. It formed in alluvium derived from mixed igneous rocks. Typically, the surface layer is light brownish gray very gravelly sandy loam about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

The stony Smedley soil is shallow and well drained. It formed in alluvium derived from mixed igneous rocks. Typically, the surface layer is light brownish gray stony sandy loam about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of this unit is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly galleta, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly galleta, Bailey greasewood, and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the shallow depth to the hardpan and low soil strength. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base and an adequate wearing surface.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-15.

1014—Smedley association, moderately steep. This map unit is on dissected alluvial fans. Slope is 4 to 30

percent. Elevation is 5,200 to 6,400 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Smedley cobbly sandy loam that has slopes of 15 to 30 percent and 35 percent Smedley very gravelly sandy loam that has slopes of 4 to 15 percent. The Smedley cobbly sandy loam is on dissected side slopes, and the Smedley very gravelly sandy loam is on the tops of alluvial fans.

Included in this unit are about 8 percent soils that are similar to Biddleman soils and are on side slopes (range site 27-15), 5 percent Haar soils on eroded side slopes (range site 26-11), and 2 percent Malpais soils on inset alluvial fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Smedley cobbly sandy loam is shallow and well drained. It formed in alluvium derived from mixed igneous rocks. Typically, the surface layer is light brownish gray cobbly sandy loam about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Smedley cobbly sandy loam is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Smedley very gravelly sandy loam is shallow and well drained. It formed in alluvium derived from mixed igneous rocks. Typically, the surface layer is light brownish gray very gravelly sandy loam about 2 inches thick. The subsoil is brown gravelly clay loam about 16 inches thick. The upper 25 inches of the substratum is a strongly cemented hardpan, and the lower part to a depth of 60 inches or more is light gray extremely gravelly sandy loam. Depth to the hardpan ranges from 14 to 20 inches.

Permeability of the Smedley very gravelly sandy loam is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly galleta, Bailey greasewood, and Indian ricegrass. The present vegetation in most areas is mainly galleta, Bailey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of the shallow depth to the hardpan, low soil strength, and slope in some areas of the unit. Roads should be designed to minimize cuts because of the limited depth to the underlying hardpan. Roads should be provided with a stable base, an adequate wearing surface, and adequate surface drainage. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Smedley cobbly sandy loam is in capability subclass VIIe, nonirrigated, and in range site 27-15. The Smedley very gravelly sandy loam is in capability subclass VIIs, nonirrigated, and in range site 27-15.

1021—Springmeyer sandy loam, 0 to 4 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from various kinds of rock. Elevation is 6,500 to 7,500 feet. The average annual precipitation is about 11 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 90 to 110 days.

Typically, the surface layer is grayish brown sandy loam about 10 inches thick. The subsoil is brown sandy clay loam about 24 inches thick. The substratum to a depth of 60 inches or more is yellowish brown sandy loam.

Included in this unit are about 10 percent Shree soils on the upper part of alluvial fans (range site 26-10) and 5 percent Ister soils on mountain toe slopes (range site 26-5). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Springmeyer soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Thurber needlegrass, Wyoming big sagebrush, and antelope bitterbrush. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the moderate average annual precipitation. The suitability of this unit for rangeland seeding is fair. The main limitation is the moderate average annual precipitation.

Trafficability of roads on this unit can be improved by providing a stable base and an adequate wearing surface. If surface drainage and a stable base are provided, damage from frost heaving is minimized.

This map unit is in capability subclass VIc, nonirrigated, and in range site 26-10.

1031—Burnborough-Glean association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation

is 7,600 to 9,000 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 60 to 80 days.

This unit is 55 percent Burnborough very stony loam that has slopes of 30 to 50 percent and 35 percent Glean stony loam that has slopes of 15 to 50 percent. The Burnborough soil is on convex side slopes, and the Glean soil is on colluvial and concave side slopes.

Included in this unit are about 5 percent Rock outcrop on ridges and 5 percent Rubble land below the areas of Rock outcrop. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Burnborough soil is very deep and well drained. It formed in residuum and colluvium derived dominantly from volcanic rock. Typically, the surface layer is dark grayish brown and brown very stony loam about 10 inches thick. The subsoil is brown very gravelly clay loam about 32 inches thick. The substratum to a depth of 60 inches or more is pale brown very gravelly loam.

Permeability of the Burnborough soil is moderate. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Glean soil is deep and very deep and is well drained. It formed in colluvium derived from various kinds of rock. Typically, the surface layer is brown stony loam about 14 inches thick. The underlying material to a depth of 51 inches is pale brown very cobbly loam. Bedrock is at a depth of 51 inches. Depth to bedrock ranges from 40 to 70 inches.

Permeability of the Glean soil is moderately rapid. Available water capacity is moderate. Effective rooting depth is 40 to 70 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Burnborough soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, green ephedra, and mountain brome. The production of forage is limited by cold soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope.

The potential plant community on the Glean soil is mainly western needlegrass, mountain brome, and mountain big sagebrush. The present vegetation in most areas is mainly mountain big sagebrush, snowberry, and Nevada bluegrass. The production of forage is limited by cold soil temperatures. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Cold soil temperatures limit plant growth. Therefore, grazing should be delayed until the soils in the unit have warmed up and the plants have achieved sufficient growth.

This unit is limited for roads because of steepness of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Burnborough soil is in range site 26-5, and the Glean soil is in range site 26-38.

1041—Whichman-Ister-Rock outcrop association. This map unit is on mountains. Slope is 30 to 50 percent. Elevation is 6,500 to 7,500 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 40 percent Whichman cobbly loamy sand, 30 to 50 percent slopes; 30 percent Ister very stony sandy loam, 30 to 50 percent slopes; and 15 percent Rock outcrop. The Whichman soil is on concave side slopes. The Ister soil is on convex side slopes, and Rock outcrop is on ridges and rims.

Included in this unit are about 10 percent Hyloc soils on rounded ridges (pinyon-juniper woodland) and 5 percent Veta soils in drainageways and on inset alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Whichman soil is deep and well drained. It formed in colluvium derived dominantly from andesite. Typically, 40 to 80 percent of the surface is covered with stones, cobbles, and pebbles. The surface layer is brown cobbly loamy sand about 15 inches thick. The subsoil is brown extremely stony sandy loam about 10 inches thick. The upper 8 inches of the substratum is pale brown extremely stony sandy loam, and the lower part to a depth of 56 inches is very pale brown very cobbly sandy loam. Hard bedrock is at a depth of 56 inches. Depth to bedrock ranges from 40 to 60 inches or more.

Permeability of the Whichman soil is moderately rapid. Available water capacity is low. Effective rooting depth is 40 to 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Ister soil is moderately deep and well drained. It formed in residuum derived dominantly from andesite. Typically, 40 to 80 percent of the surface is covered with stones, cobbles, and pebbles. The surface layer is grayish brown very stony sandy loam about 17 inches thick. The subsoil is light yellowish brown very stony

sandy clay loam about 21 inches thick. Hard bedrock is at a depth of 38 inches. Depth to bedrock ranges from 25 to 40 inches.

Permeability of the Ister soil is moderately slow. Available water capacity is low. Effective rooting depth is 25 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rock outcrop consists of exposures of volcanic bedrock.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Whichman soil is mainly Thurber needlegrass, Wyoming big sagebrush, and basin wildrye. The potential plant community on the Ister soil is mainly mountain big sagebrush, mountain brome, and western needlegrass. The present vegetation in most areas of this unit is mainly singleleaf pinyon and Utah juniper. The production of forage is limited by the low available water capacity. The suitability of the unit for rangeland seeding is very poor. The main limitations are the steepness of slope and rock fragments on the surface.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas. Because of the density of the pinyon and juniper trees in most areas, this unit can be managed for wood products. The reestablishment of the rangeland plant community in some areas may be difficult.

This unit is limited for roads because of steepness of slope and stones and cobbles in the soil. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Whichman soil is in capability subclass VIIe, nonirrigated, and in range site 26-10. The Ister soil is in capability subclass VIIs, nonirrigated, and in range site 26-5.

1051—Zyzzi very gravelly sandy loam, 8 to 30 percent slopes. This very shallow, well drained soil is on hills. It formed in residuum derived dominantly from granitic bedrock. Elevation is 6,000 to 7,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is brown very gravelly sandy loam about 2 inches thick. The subsoil is brown extremely gravelly sandy clay loam about 4 inches thick. Weathered bedrock is at a depth of 6 inches. Depth to bedrock ranges from 4 to 10 inches.

Included in this unit are about 10 percent Rock outcrop on ridges and rims and 5 percent Veta soils in drainageways and on inset alluvial fans (range site 26-24). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Zyzzi soil is moderately slow. Available water capacity is very low. Effective rooting depth is 4 to 10 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly low sagebrush, galleta, and Thurber needlegrass. The present vegetation in most areas is mainly low sagebrush, galleta, and Indian ricegrass. The production of forage is limited by the very low available water capacity. The suitability of this unit for rangeland seeding is very poor. The main limitation is the very low available water capacity. Loss of the surface layer results in a severe decrease in productivity and in the potential of the Zyzzi soil to produce plants suitable for grazing.

The Zyzzi soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Power equipment is needed to make cuts in the upper part of the bedrock. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-49.

1072—Hawsley sand, 2 to 8 percent slopes. This very deep, somewhat excessively drained soil is on alluvial fans and lake terraces. It formed in alluvium and water-worked eolian deposits derived from various kinds of rock. Elevation is 4,100 to 4,500 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is light brownish gray sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown and light brownish gray sand.

Included in this unit is about 10 percent Patna soils on the slightly higher lying lake terraces (range site 27-9).

Permeability of this Hawsley soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly Indian ricegrass, fourwing saltbush, and Bailey greasewood. The present vegetation in most areas is mainly Indian ricegrass and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

Roads generally can easily be constructed and maintained on this unit. During prolonged dry periods, however, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-9.

1073—Hawsley-Gamgee association. This map unit is on alluvial fans and lake terraces. Slope is 2 to 15 percent. Elevation is 4,400 to 4,800 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 55 percent Hawsley sand and 30 percent Gamgee stony sandy loam. The Hawsley soil is on lake terraces, and the Gamgee soil is on alluvial fans.

Included in this unit are about 10 percent Patna soils on reworked plains (range site 27-9) and 5 percent Theon soils on isolated hills (range site 27-19). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Hawsley soil is very deep and somewhat excessively drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is light brownish gray sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown sand and fine sand.

Permeability of the Hawsley soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

The Gamgee soil is very deep and well drained. It formed in alluvium derived from volcanic rock. Typically, the surface layer is light brownish gray stony sandy loam about 4 inches thick. The subsoil is yellowish brown clay loam about 13 inches thick. The substratum to a depth of 60 inches or more is pale brown sandy loam.

Permeability of the Gamgee soil is slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subsoil and substratum.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Hawsley soil is mainly Indian ricegrass and fourwing saltbush. The present vegetation in most areas is mainly Indian ricegrass and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The potential plant community on the Gamgee soil is mainly Galleta, Indian ricegrass, and Bailey greasewood. The present vegetation in most areas is mainly galleta, shadscale, and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Cutting and filling can be reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. When the Hawsley soil is dry, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated. The Hawsley soil is in range site 27-9, and the Gamgee soil is in range site 27-15.

1074—Hawsley loamy fine sand, silty substratum, 0 to 2 percent slopes. This very deep, somewhat excessively drained soil is on lake terraces. It formed in wind-worked alluvium derived from various kinds of rock. Elevation is 4,150 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

Typically, the surface layer is very pale brown loamy fine sand about 8 inches thick. The upper 42 inches of the underlying material is pale brown sand and fine sand, and the lower part to a depth of 60 inches or more is light gray silt loam.

Included in this unit are about 8 percent Patna soils in slightly higher lying areas (range site 27-9) and 2 percent Playas in depressional areas. Included areas make up about 10 percent of the total acreage.

Permeability of this Hawsley soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is strongly salt- and alkali-affected in the lower part of the underlying material.

This unit is used mainly for livestock grazing and homesite development. It is also used for irrigated cultivated crops.

The potential plant community on this unit is mainly Indian ricegrass and fourwing saltbush. The present vegetation in most areas is mainly Indian ricegrass and

Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

If this unit is used for irrigated cultivated crops, the main limitations are low available water capacity and very rapid permeability. The very rapid movement of water in the upper part of the soil should be considered when selecting the irrigation method or design. Because the soil is droughty, applications of irrigation water should be light and frequent. Maintaining crop residue on or near the surface reduces runoff, reduces soil blowing, and helps to maintain soil tilth and organic matter content.

This unit is well suited to the construction of dwellings.

The main limitation for septic tank absorption fields is the very rapid permeability. Special design may be needed to avoid polluting ground water.

Roads generally can easily be constructed and maintained on this unit. When the soil is dry, however, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclasses IVs, irrigated, and VIIs, nonirrigated. It is in range site 27-9.

1075—Hawsley-Playas complex. This map unit is on lake terraces. Slope is 0 to 2 percent. Elevation is 4,150 to 4,400 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 51 degrees F, and the average frost-free period is 100 to 130 days.

This unit is 60 percent Hawsley loamy fine sand, silty substratum, and 30 percent Playas. The Hawsley soil is on hummocky terraces, and the Playas are in depressional areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Patna soils on lake plains.

The Hawsley soil is very deep and somewhat excessively drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is very pale brown loamy fine sand about 8 inches thick. The upper 42 inches of the underlying material is pale brown sand and fine sand, and the lower part to a depth of 60 inches or more is light gray silt loam.

Permeability of the Hawsley soil is very rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. This soil is strongly salt- and alkali-affected in the lower part of the underlying material.

Playas consist of barren, nearly level areas that are somewhat lower lying than surrounding areas. The surface layer is moderately fine textured or fine textured. Playas are subject to frequent, brief to long periods of ponding after heavy rains.

This unit is used mainly for livestock grazing. It is also used for homesite development.

The potential plant community on this unit is mainly Indian ricegrass and fourwing saltbush. The present vegetation in most areas is mainly Indian ricegrass and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. Livestock grazing should be managed to protect the unit from blowing and drifting sand.

The Hawsley soil is well suited to the construction of dwellings. If the areas of Playas are used for homesite development, the main limitations are the hazard of ponding or flooding and the potential for frost heaving.

The main limitation for septic tank absorption fields is the very rapid permeability. Special design may be needed to avoid polluting ground water.

Roads generally can easily be constructed and maintained on this unit. When the soil is dry, however, roads are difficult to maintain because of the presence of loose sand. This results in poor traction and an increased risk of soil blowing.

This map unit is in capability subclass VIIs, nonirrigated. The Hawsley soil is in range site 27-9.

1081—Stucky extremely cobbly sandy loam, 8 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from granitic rock. Elevation is 5,000 to 6,000 feet. The average annual precipitation is about 9 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray extremely cobbly sandy loam about 6 inches thick. The subsoil is yellowish brown extremely cobbly sandy clay loam about 14 inches thick. The next 15 inches is pale brown very stony sandy loam. Below this to a depth of 60 inches or more is stratified, brown very stony clay loam, yellowish brown extremely stony loam, and light yellowish brown extremely cobbly loam.

Included in this unit are about 10 percent Haybourne soils on inset alluvial fans (range site 26-16) and 5 percent Reno soils on terrace remnants (range site 26-25). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Stucky soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly low sagebrush and desert needlegrass. The present vegetation in most areas is mainly low sagebrush and Indian ricegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is poor. The main limitations are the low average annual precipitation and low available water capacity.

This unit is limited for roads because of stones and cobbles in the soil. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost.

This unit is in capability subclass VIIs, nonirrigated, and in range site 26-47.

1082—Stucky association. This map unit is on dissected alluvial fans. Slope is 8 to 30 percent. Elevation is 5,300 to 5,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 55 percent Stucky very cobbly loam, 8 to 15 percent slopes, and 30 percent Stucky very cobbly loam, 15 to 30 percent slopes. The Stucky soil, 8 to 15 percent slopes, is on the tops of alluvial fans, and the Stucky soil, 15 to 30 percent slopes, is on the dissected side slopes.

Included in this unit are about 10 percent Reno soils on terrace remnants (range site 26-25) and 5 percent Haybourne soils on inset alluvial fans (range site 26-16). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Stucky soils are very deep and well drained. They formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is light brownish gray very cobbly loam about 6 inches thick. The subsoil is yellowish brown extremely cobbly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is stratified extremely cobbly sandy loam to very stony clay loam.

Permeability of the Stucky soils is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential and present plant community on this unit is mainly low sagebrush and desert needlegrass. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is poor. The main limitation is the low average annual precipitation.

This unit is limited for roads because of stones and cobbles in the soils and steepness of slopes. Unless an adequate wearing surface is maintained, stones and cobbles in the soils create road hazards and increase maintenance cost. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 26-47.

1083—Stucky-Hunewill-Veta association. This map unit is on alluvial fans and terraces. Slope is 2 to 30 percent. Elevation is 5,000 to 6,000 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 50 percent Stucky extremely cobbly loam that has slopes of 2 to 8 percent, 20 percent Hunewill stony loam that has slopes of 15 to 30 percent, and 20 percent Veta very gravelly sandy loam that has slopes of 2 to 4 percent. The Stucky soil is on alluvial fan remnants and the tops of terraces, the Hunewill soil is on dissected side slopes, and the Veta soil is in drainageways and on inset alluvial fans.

Included in this unit is about 10 percent Fulstone soils on alluvial fan remnants (range site 26-25).

The Stucky soil is very deep and well drained. It formed in alluvium derived dominantly from granitic rock. Typically, the surface layer is light brownish gray extremely cobbly loam about 6 inches thick. The subsoil is yellowish brown extremely cobbly sandy clay loam about 14 inches thick. The substratum to a depth of 60 inches or more is stratified extremely cobbly sandy loam to very stony clay loam.

Permeability of the Stucky soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Hunewill soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is light brownish gray stony loam about 3 inches thick. The subsoil is brown very gravelly clay loam about 10 inches thick. The next layer is a buried subsoil of brown very gravelly sandy loam about 5 inches thick. The substratum to a depth of 60 inches or more is grayish brown extremely gravelly sand.

Permeability of the Hunewill soil is moderately slow. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Veta soil is very deep and well drained. It formed in alluvium derived from various kinds of rock. Typically, the surface layer is light brownish gray very gravelly sandy loam about 6 inches thick. The subsoil is pale brown very gravelly loam about 12 inches thick. The

substratum to a depth of 60 inches or more is stratified extremely gravelly loamy sand to very gravelly loam.

Permeability of the Veta soil is moderately rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Stucky soil is mainly low sagebrush and desert needlegrass. The present vegetation in most areas is mainly low sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation. The suitability of this soil for rangeland seeding is poor. The main limitation is the low average annual precipitation.

The potential plant community on the Hunewill soil is mainly Wyoming big sagebrush, Thurber needlegrass, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitations are the low average annual precipitation and low available water capacity.

The potential plant community on the Veta soil is mainly Wyoming big sagebrush, spiny hopsage, and Indian ricegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, spiny hopsage, and Douglas rabbitbrush. The production of forage is limited by the low average annual precipitation and low available water capacity. The suitability of this soil for rangeland seeding is poor. The main limitations are the low average annual precipitation and low available water capacity.

The Stucky soil is limited for roads because of stones and cobbles in the soil. Unless an adequate wearing surface is maintained, the stones and cobbles in the soil create road hazards and increase maintenance cost. The Hunewill soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas. Local roads and streets on the Veta soil may require a special base to avoid frost-heave damage. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Stucky soil is in capability subclass VIIs, nonirrigated, and in range site 26-47. The Hunewill soil is in capability subclass VIs, nonirrigated, and in range site 26-16. The Veta soil is in capability subclass VIIs, nonirrigated, and in range site 26-24.

1091—Glean Variant-Hartig Variant-Rubble land association. This map unit is on mountains. Slope is 30 to 75 percent. Elevation is 8,000 to 10,500 feet. The average annual precipitation is about 14 inches, the average annual air temperature is about 43 degrees F, and the average frost-free period is 70 to 90 days.

This unit is 45 percent Glean Variant gravelly loamy sand that has slopes of 50 to 75 percent, 30 percent Hartig Variant extremely gravelly coarse sand that has slopes of 30 to 50 percent, and 15 percent Rubble land. The Glean Variant soil is on south- and southwest-facing side slopes, the Hartig Variant soil is on north- and east-facing side slopes, and the Rubble land is on the steeper slopes.

Included in this unit are about 5 percent Rock outcrop on ridges and rims and 5 percent deep, cold soils that are in north-facing snow pockets and support whitebark pine. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Glean Variant soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from granitic bedrock. Typically, the surface layer is dark grayish brown and brown gravelly loamy sand about 11 inches thick. The underlying material to a depth of 31 inches is brown gravelly sand. Weathered granitic rock is at a depth of 31 inches. Depth to weathered bedrock ranges from 20 to 40 inches.

Permeability of the Glean Variant soil is very rapid. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Hartig Variant soil is shallow and well drained. It formed in residuum derived dominantly from granitic bedrock. Typically, the surface layer is dark grayish brown extremely gravelly coarse sand about 2 inches thick. The next layer averages dark grayish brown extremely gravelly sandy loam and is about 14 inches thick. Granitic rock is at a depth of 16 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Hartig Variant soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

Rubble land consists of barren areas of cobbles, stones, and boulders. It supports little if any vegetation except lichens.

This unit is used mainly for wildlife habitat. It is also used for livestock grazing.

The potential and present plant community on the Glean Variant soil is mainly curlleaf mountainmahogany. The potential plant community on the Hartig Variant soil is mainly mountain big sagebrush and western needlegrass. The present vegetation in most areas is mainly mountain big sagebrush and green ephedra. The production of forage on these soils is limited by the very low available water capacity and cold soil temperatures. The suitability of the soils for rangeland seeding is very

poor. The main limitations are steepness of slope and very low available water capacity.

Cold soil temperatures limit plant growth. Grazing therefore should be delayed until the soils have warmed up and the plants have achieved sufficient growth. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect the soils from excessive erosion and to prevent overgrazing in the less sloping areas.

The Glean Variant soil is limited for roads because of slope. The Hartig Variant soil is limited for roads because of slope and shallow depth to bedrock. Because of the bedrock, deep cuts should be avoided on the Hartig Variant soil. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIs, nonirrigated. The Glean Variant soil is in range site 26-9, and the Hartig Variant soil is in range site 26-38.

1103—Mirkwood-Nemico association. This map unit is on hills and low mountains. Slope is 0 to 50 percent. Elevation is 4,400 to 6,500 feet. The average annual precipitation is about 6 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 60 percent Mirkwood very cobbly fine sandy loam that has slopes of 15 to 50 percent and 25 percent Nemico very stony sandy loam that has slopes of 0 to 15 percent. The Mirkwood soil is on hillsides and mountainsides, and the Nemico soil is on plateaus and broad ridges.

Included in this unit are about 6 percent Old Camp soils on north-facing side slopes (range site 26-22), 5 percent Rock outcrop on ridges and rims, and 4 percent Malpais soils in drainageways and on short alluvial fans (range site 27-18). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Mirkwood soil is very shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very cobbly fine sandy loam about 7 inches thick. The subsoil is yellowish brown very gravelly clay loam about 7 inches thick. Lime-coated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 7 to 14 inches.

Permeability of the Mirkwood soil is moderately slow. Available water capacity is very low. Effective rooting depth is 7 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Nemico soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is mainly light gray gravelly sandy loam about 6 inches thick. The subsoil is yellowish brown gravelly clay loam and gravelly clay about 12 inches thick. The next layer is a hardpan about 3 inches thick. Bedrock is at a depth of 21 inches. Depth to the hardpan ranges from 10 to 20 inches. Depth to bedrock ranges from 11 to 25 inches.

Permeability of the Nemico soil is very slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subsoil.

This unit is used for livestock grazing and wildlife habitat.

The potential and present plant community on the Mirkwood soil is mainly desert needlegrass and shadscale. The potential and present plant community on the Nemico soil is mainly galleta and Bailey greasewood. The production of forage on this unit is limited by the low average annual precipitation. The suitability of the unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

This unit is limited for roads because of shallow depth to bedrock and slope. Roads should be designed to minimize cuts because of the limited depth to bedrock. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIIs, nonirrigated. The Mirkwood soil is in range site 27-17, and the Nemico soil is in range site 27-15.

1110—Surgem-Olac-Cagle association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 5,000 to 6,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 85 to 110 days.

This unit is 45 percent Surgem extremely stony sandy loam that has slopes of 30 to 50 percent, 25 percent Olac very stony loam that has slopes of 30 to 50 percent, and 15 percent Cagle very stony loam that has slopes of 15 to 50 percent. The Surgem soil is on south- and west-facing side slopes, the Olac soil is on the lower part of south- and east-facing side slopes, and the Cagle soil is on the north-facing side slopes.

Included in this unit are about 6 percent Veta soils that are flooded and are in drainageways (range site 26-34), 5 percent Rock outcrop on ridges and rims, and 4 percent Rubble land below the areas of Rock outcrop. Included areas make up about 15 percent of the total

acreage. The percentage varies from one area to another.

The Surgem soil is moderately deep and well drained. It formed in residuum derived dominantly from granitic rock. Typically, the surface layer is light brownish gray and brown extremely stony sandy loam about 6 inches thick. The subsoil is mainly brown extremely gravelly clay about 16 inches thick. Hard bedrock is at a depth of 22 inches. Depth to bedrock ranges from 20 to 30 inches.

Permeability of the Surgem soil is slow. Available water capacity is low. Effective rooting depth is 20 to 30 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Olac soil is very shallow and well drained. It formed in residuum derived dominantly from rhyolite. Typically, the surface layer is grayish brown very stony loam about 4 inches thick. The subsoil is yellowish brown extremely gravelly loam about 10 inches thick. Hard bedrock is at a depth of 14 inches. Depth to bedrock ranges from 8 to 14 inches.

Permeability of the Olac soil is moderate. Available water capacity is very low. Effective rooting depth is 8 to 14 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Cagle soil is moderately deep and well drained. It formed in colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown very stony loam about 2 inches thick. The subsoil is brown gravelly clay about 28 inches thick. Weathered bedrock is at a depth of 30 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Cagle soil is slow. Available water capacity is low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Surgem soil is mainly low sagebrush, Thurber needlegrass, pine bluegrass, and antelope bitterbrush. The present vegetation in most areas is mainly low sagebrush and Thurber needlegrass. Pinyon and juniper have invaded. The production of forage is limited by the low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and stones on the surface.

The potential plant community on the Olac soil is mainly low sagebrush and Thurber needlegrass. The present vegetation in most areas is mainly low sagebrush, bottlebrush squirreltail, and some pinyon. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope and the very low available water capacity.

The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas of the Cagle soil.

The potential plant community on the Cagle soil is mainly singleleaf pinyon and Utah juniper. The present vegetation in most areas is mainly pinyon and juniper with an understory of Wyoming big sagebrush and pine bluegrass. This soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing and harvesting trees are slope and the very stony surface layer, which interfere with the use of equipment.

The Surgem soil is limited for roads because of slope and stones and cobbles in the soil. Unless an adequate wearing surface is maintained, the stones and cobbles in the soil create road hazards and increase maintenance cost. The Olac soil is limited for roads because of shallow depth to bedrock and slope. Roads should be designed to minimize cuts because of the limited depth to bedrock. The Cagle soil is limited for roads because of slope and shrink-swell potential. Roads should be provided with a stable base and an adequate wearing surface.

Cutting and filling are reduced by building roads in the less sloping areas of this unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. When building roads on the unit, construction and maintenance cost can be reduced if areas of the clayey Cagle soil are avoided.

This map unit is in capability subclass VIIs, nonirrigated. The Surgem soil is in range site 26-23, and the Olac soil is in range site 26-25.

1121—Duco-Nosrac association. This map unit is on mountains. Slope is 15 to 50 percent. Elevation is 5,400 to 7,200 feet. The average annual precipitation is about 12 inches, the average annual air temperature is about 48 degrees F, and the average frost-free period is 85 to 105 days.

This unit is 45 percent Duco very cobbly fine sandy loam that has slopes of 15 to 50 percent and 40 percent Nosrac very stony loam that has slopes of 30 to 50 percent. The Duco soil is on south-facing side slopes and on ridges, and the Nosrac soil is on north-facing side slopes.

Included in this unit are about 8 percent Rock outcrop on ridges, 4 percent shallow soils on the upper part of south-facing side slopes (range site 26-28), and 3 percent Whichman soils on concave side slopes (range site 26-10). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Duco soil is shallow and well drained. It formed in residuum derived dominantly from andesite. Typically,

the surface layer is grayish brown very cobbly fine sandy loam about 4 inches thick. The subsoil is brown very gravelly clay loam about 15 inches thick. Hard bedrock is at a depth of 19 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Duco soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Nosrac soil is very deep and well drained. It formed in residuum and colluvium derived dominantly from andesite. Typically, the surface layer is grayish brown very stony loam about 12 inches thick. The upper 33 inches of the subsoil is brown very gravelly clay loam, and the lower 15 inches is pale brown very gravelly loam.

Permeability of the Nosrac soil is moderately slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for livestock grazing, wildlife habitat, and wood products.

The potential plant community on the Duco soil is mainly singleleaf pinyon and Utah juniper. The present vegetation is mainly pinyon and juniper with an understory of Sandberg bluegrass and antelope bitterbrush. This soil can produce 4 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. Stones and cobbles on the surface and steepness of slope interfere with the use of equipment.

The potential community on the Nosrac soil is mainly western needlegrass and mountain big sagebrush. The present vegetation is mainly singleleaf pinyon and Utah juniper. The production of forage is limited by the moderate available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitation is steepness of slope. Livestock grazing should be managed to protect the soil from excessive erosion and to prevent overgrazing in the less sloping areas. The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock.

The Duco soil is limited for roads because of shallow depth to bedrock, slope, and stones and cobbles in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. The Nosrac soil is limited for road location because of slope. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

This map unit is in capability subclass VIIe, nonirrigated. The Nosrac soil is in range site 26-10.

1131—Gamgee gravelly sand, 2 to 15 percent slopes. This very deep, well drained soil is on alluvial fans. It formed in alluvium derived from volcanic rock. Elevation is 4,600 to 5,200 feet. The average annual precipitation is about 5 inches, the average annual air temperature is about 50 degrees F, and the average frost-free period is 100 to 120 days.

Typically, the surface layer is light brownish gray gravelly sand about 4 inches thick. The upper 13 inches of the subsoil is dark yellowish brown and yellowish brown clay loam, and the lower 6 inches is light yellowish brown loam. The substratum to a depth of 60 inches or more is pale brown sandy loam.

Included in this unit are about 10 percent nongravelly soils on toe slopes of alluvial fans (range site 27-18) and 5 percent Hawsley soils on stabilized sand dunes (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Gamgee soil is slow. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subsoil and substratum.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly galleta, Indian ricegrass, and Bailey greasewood. The present vegetation in most areas is mainly galleta, Bailey greasewood, and shadscale. The production of forage is limited by the low average annual precipitation. The suitability of this unit for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

Trafficability of roads can be improved by providing a stable base and an adequate wearing surface. Cutting and filling are reduced by building roads in the less sloping areas of the unit.

This map unit is in capability subclass VIIs, nonirrigated, and in range site 27-15.

1141—Old Camp-Mirkwood-Nemico association. This map unit is on hills and mountains. Slope is 4 to 75 percent. Elevation is 4,400 to 6,500 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 45 percent Old Camp extremely stony loam that has slopes of 30 to 50 percent, 25 percent Mirkwood extremely stony loam that has slopes of 30 to 75 percent, and 15 percent Nemico very stony sandy loam that has slopes of 4 to 30 percent. The Old Camp soil is on north- and east-facing side slopes, the

Mirkwood soil is on south- and west-facing side slopes, and the Nemico soil is on plateaus and broad ridges.

Included in this unit are about 8 percent Rock outcrop on ridges and rims, 4 percent Veta soils on inset alluvial fans (range site 26-16), and 3 percent Hawsley soils on the leeward side of ravines (range site 27-9). Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer averages grayish brown extremely stony loam and is about 4 inches thick. The subsoil averages pale brown very cobbly clay loam and is about 10 inches thick. Lime-coated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Mirkwood soil is very shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray extremely stony loam about 4 inches thick. The subsoil is yellowish brown very gravelly clay loam about 10 inches thick. Hard bedrock is at a depth of 14 inches. Depth to bedrock ranges from 7 to 14 inches.

Permeability of the Mirkwood soil is moderately slow. Available water capacity is very low. Effective rooting depth is 7 to 14 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Nemico soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very stony sandy loam about 6 inches thick. The subsoil is yellowish brown gravelly clay loam and gravelly clay about 12 inches thick. The next layer is a hardpan about 3 inches thick. Bedrock is at a depth of 21 inches. Depth to the hardpan ranges from 10 to 20 inches. Depth to bedrock ranges from 11 to 25 inches.

Permeability of the Nemico soil is very slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight. This soil is slightly salt- and alkali-affected in the subsoil.

This unit is used for livestock grazing and wildlife habitat.

The potential plant comunity on the Old Camp soil is mainly Wyoming big sagebrush, Nevada ephedra, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth.

The potential and present plant community on the Mirkwood soil is mainly desert needlegrass and shadscale. The potential and present plant community on the Nemico soil is mainly galleta and Bailey greasewood. The production of forage is limited by the low average annual precipitation. The suitability of these soils for rangeland seeding is very poor. The main limitation is the low average annual precipitation.

The stones and cobbles on the surface interfere with use of mechanical equipment and the movement of livestock. Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas of the Nemico soil.

This unit is limited for roads because of shallow depth to bedrock and slope and stones and cobbles in the Old Camp soil. Unless an adequate wearing surface is maintained, stones and cobbles in the Old Camp soil create road hazards and increase maintenance cost. Cutting and filling are reduced by building roads in the less sloping areas of the unit. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed. Roads should be designed to minimize cuts because of the limited depth to bedrock.

The Old Camp soil is in capability subclass VIIe, nonirrigated, and in range site 27-7. The Mirkwood soil is in capability subclass VIIs, nonirrigated, and in range site 27-17. The Nemico soil is in capability subclass VIIs, nonirrigated, and in range site 27-15.

1142—Old Camp-Holbrook Variant association. This map unit is on hills and mountains. Slope is 15 to 50 percent. Elevation is 5,000 to 6,200 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 100 to 120 days.

This unit is 65 percent Old Camp very stony loam that has slopes of 15 to 30 percent and 20 percent Holbrook Variant very stony fine sandy loam that has slopes of 30 to 50 percent. The Old Camp soil is on the lower lying, more rounded side slopes, and the Holbrook Variant soil is on the higher lying side slopes.

Included in this unit are about 8 percent Olac soils on ridges and convex slopes (range site 26-25) and 7 percent Rock outcrop on ridges and rims. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray very stony loam about 4 inches thick. The subsoil is pale brown very cobbly clay loam about 10

inches thick. Lime-coated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Holbrook Variant soil is moderately deep and well drained. It formed in colluvium derived dominantly from andesite and basalt. Typically, the surface layer is pale brown very stony fine sandy loam about 9 inches thick. The subsoil is pale brown very cobbly sandy loam about 11 inches thick. The substratum is pale brown very gravelly fine sandy loam about 15 inches thick. Hard bedrock is at a depth of 35 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Holbrook Variant soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Old Camp soil is mainly Wyoming big sagebrush, desert needlegrass, and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitaitons are the very low available water capacity and restricted rooting depth.

The potential plant community on the Holbrook Variant soil is mainly Wyoming big sagebrush and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope, the very low available water capacity, and rock fragments on the surface.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect this unit from excessive erosion and to prevent overgrazing in the less sloping areas.

The Old Camp soil is limited for roads because of shallow depth to bedrock, slope, and stones and cobbles in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. The Holbrook Variant soil is limited for roads because of slope. Cutting and filling are reduced by building roads in the less sloping areas. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Old Camp soil is in capability subclass VIIe and in range site 26-22. The Holbrook Variant soil is in capability subclass VIIs and in range site 26-10.

1143—Old Camp-Reno Variant-Hyloc association. This map unit is on hills and mountains. Slope is 4 to 50 percent. Elevation is 6,500 to 7,500 feet. The average annual precipitation is about 10 inches, the average annual air temperature is about 49 degrees F, and the average frost-free period is 80 to 100 days.

This unit is 45 percent Old Camp extremely stony sandy loam that has slopes of 4 to 15 percent, 25 percent Reno Variant very stony sandy loam that has slopes of 30 to 50 percent, and 20 percent Hyloc gravelly loam that has slopes of 15 to 30 percent. The Old Camp soil is on the upper side slopes and ridges, the Reno Variant soil is on south- and west-facing side slopes, and the Hyloc soil is on north- and east-facing side slopes.

Included in this unit are about 6 percent Rock outcrop on ridges and 4 percent Veta soils on inset alluvial fans (range site 26-24). Included areas make up about 10 percent of the total acreage.

The Old Camp soil is shallow and well drained. It formed in residuum derived dominantly from basic igneous rock. Typically, the surface layer is light brownish gray extremely stony sandy loam about 4 inches thick. The subsoil is pale brown very cobbly clay loam about 10 inches thick. Lime-coated bedrock is at a depth of 14 inches. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Old Camp soil is moderately slow. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

The Reno Variant soil is shallow and well drained. It formed in colluvium derived dominantly from andesite. Typically, the surface layer averages light brownish gray very stony sandy loam and is about 11 inches thick. The subsoil is pale brown loam about 7 inches thick. A silica-cemented hardpan is at a depth of 18 inches. Hard bedrock is at a depth of 24 inches. Depth to the hardpan ranges from 15 to 20 inches. Depth to bedrock ranges from 20 to 36 inches.

Permeability of the Reno Variant soil is moderate. Available water capacity is very low. Effective rooting depth is 15 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Hyloc soil is shallow and well drained. It formed in residuum derived dominantly from andesite and basalt. Typically, the surface layer is grayish brown gravelly loam about 3 inches thick. The subsoil is brown clay about 15 inches thick. Weathered bedrock is at a depth of 18 inches. Hard bedrock is at a depth of 24 inches.

Depth to weathered bedrock ranges from 14 to 20 inches.

Permeability of the Hyloc soil is slow. Available water capacity is very low. Effective rooting depth is 14 to 20 inches. Runoff is medium, and the hazard of water erosion is slight. The hazard of soil blowing is slight.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Old Camp soil is mainly Wyoming big sagebrush, desert needlegrass, green ephedra, and Thurber needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush and bottlebrush squirreltail. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are the very low available water capacity and restricted rooting depth.

The potential plant community on the Reno Variant soil is mainly Wyoming big sagebrush, green ephedra, and desert needlegrass. The present vegetation in most areas is mainly Wyoming big sagebrush, bottlebrush squirreltail, and desert needlegrass. The production of forage is limited by the very low available water capacity and restricted rooting depth. The suitability of this soil for rangeland seeding is very poor. The main limitations are slope, the very low available water capacity, and restricted rooting depth.

Steepness of slope limits access and movement of livestock. Livestock grazing should be managed to protect these soils from excessive erosion and to prevent overgrazing in the less sloping areas.

The potential plant community on the Hyloc soil is mainly singleleaf pinyon and Utah juniper. The present vegetation in most areas is mainly singleleaf pinyon and Utah juniper with an understory of Wyoming big sagebrush and Thurber needlegrass.

This soil can produce 3 cords of wood per acre in a stand of pinyon and juniper trees that average 5 inches in diameter at a height of 1 foot. The main concerns in producing trees are the very low available water capacity and the shallow depth to bedrock.

The Old Camp soil is limited for roads because of shallow depth to bedrock and stones and cobbles in the soil. Roads should be designed to minimize cuts because of the limited depth to bedrock. Unless an adequate wearing surface is maintained, stones and cobbles in the soil create road hazards and increase maintenance cost. The Reno Variant soil is limited for roads because of slope. The Hyloc soil is limited for roads because of slope, low soil strength, and high shrink-swell potential of the clayey subsoil. Roads should be provided with a stable base and an adequate wearing surface. Cutting and filling are reduced by building roads in the less sloping areas. Roads should be provided with adequate surface drainage. Erosion can be controlled and maintenance cost reduced by stabilizing areas that have been disturbed.

The Old Camp soil is in capability subclass VIIs and in range site 26-22. The Reno Variant soil is in capability subclass VIIe and in range site 26-23. The Hyloc soil is in capability subclass VIIe.

Prime Farmland

Prime farmland, as defined by the United States Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It must either be used for producing food or fiber or be available for these uses. It has the soil quality, length of growing season, and moisture supply needed to economically produce a sustained high yield of crops when it is managed properly. Prime farmland produces the highest yields with minimal energy and economic resources, and farming it results in the least disturbance of the environment.

Prime farmland commonly has an adequate and dependable supply of moisture from precipitation or irrigation. It also has a favorable temperature and length of growing season and an acceptable level of acidity or alkalinity. It has few if any rock fragments and is permeable to water and air. Prime farmland is not excessively eroded or saturated with water for long periods and is not flooded during the growing season. The slope is no more than 6 percent. Soils that are limited by a hazard of flooding may qualify for prime farmland if this limitation is overcome. Onsite investigation is needed to determine the extent of this limitation.

About 62,200 acres, or nearly 5 percent, of the survey area meets the requirements for prime farmland if an adequate and dependable supply of irrigation water is available. The major irrigated areas are in Mason and Smith Valleys, and some areas are along the Carson River. The main crops grown are corn, onions, garlic, small grain, and potatoes. Alfalfa is the principal hay crop.

The following map units meet the soil requirements for prime farmland when irrigated and, if needed, protected from flooding.

181 Charlebois loam, 0 to 2 percent slopes
182 Charlebois loam, 2 to 4 percent slopes
184 Charlebois gravelly loam, 0 to 2 percent slopes
185 Charlebois sandy loam, 0 to 2 percent slopes
251 Dia loam
252 Dia clay loam
253 Dia clay loam, wet
256 Dia-Sagouspe complex
261 Dithod loam
262 Dithod loam, clay substratum
263 Dithod clay loam, wet
265 Dithod clay loam
269 Dithod-Sagouspe-Dia complex
271 East Fork loam
272 East Fork loam, occasionally flooded
274 East Fork clay loam
276 East Fork clay loam, clay substratum
277 East Fork gravelly clay loam
291 Fallon sand
292 Fallon fine sandy loam
293 Fallon fine sandy loam, frequently flooded
301 Fernley loamy sand
302 Fernley loamy sand, drained
321 Haybourne loam
343 Holbrook-Hotsprings complex, 2 to 15 percent slopes
352 Hotsprings loamy coarse sand, 2 to 8 percent slopes
353 Hotsprings gravelly loamy coarse sand, 0 to 2 percent slopes
354 Hotsprings-Holbrook complex, 2 to 4 percent slopes
452 Obanion sandy loam, drained
519 Patna loam, 0 to 2 percent slopes
591 Rose Creek loam
611 Sagouspe sandy loam
613 Sagouspe loam, wet
721 Wabuska loamy sand
722 Wabuska loam

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

John Schelling, district conservationist, Soil Conservation Service, helped write this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Resource management systems are a combination of interrelated conservation practices and management techniques used to arrest or prevent deterioration and maintain the productive capability of the soil. This means that soil erosion as well as other factors that may influence production are kept within acceptable limits.

Soils may differ in management needs; however, there are basic essential practices that apply to all cultivated soils. Aspects of management are discussed in the following paragraphs.

Cropping systems.—A desirable cropping system consists of growing crops in rotation and using cultural and management practices that improve the soil and more than offset the depletion and deterioration of the soil. The system should protect the soil from erosion and maintain or improve fertility and tilth. It should include perennial legumes, grass-legume mixtures, or other crops that produce large quantities of residue to compensate for crops in the rotation that produce little or no residue.

Adequate fertilizer should be used to maintain or improve fertility. Tillage operations should be limited to those that are essential for seedbed preparation and weed control. They should be timed to coincide with the proper soil moisture condition to avoid compaction and maintain tilth.

A typical cropping system used in this survey area is 8 to 10 years of alfalfa and 2 years of small grain. Residue from small grain is usually returned to the soil. Occasionally, alfalfa is seeded into the grain stubble to protect the soil from erosion. Onions or garlic can be substituted for 1 year of alfalfa or small grain.

Irrigation water management.—Proper irrigation water management is the application of irrigation water at rates and in amounts adequate to produce high crop yields and to minimize soil and water losses. Water should be applied according to the crop needs and the characteristics of the soil.

A good irrigation distribution system is one that has enough capacity to meet the needs of the crops grown and that is properly located and controlled so that seepage losses are minimal. The design of an irrigation system is governed by the method of irrigation to be used, the amount of land leveling needed, and the expected efficiency in applying water.

To apply water efficiently, consider the available water capacity, the water intake rate, and the crop needs. Most crops should be irrigated when 40 or 50 percent of the available moisture in the top half of the root zone has been used. A soil check can be made 2 days after irrigation to determine whether the desired amount of moisture was added.

Management of saline soils.—Like most soils in arid and subarid regions, the soils in this survey area contain at least small quantities of soluble salts and alkali. In some soils high concentrations of salts and alkali limit or prevent the growth of crops. Because precipitation is low and the rate of evaporation is high, salts accumulate in the root zone. In addition, many low-lying areas receive salty water from runoff or seepage. Surface evaporation of this water generally results in an increase of soluble salts on or in the soils. In some areas that have a high water table, water rises in the soil by capillary action and carries dissolved salts with it. The soluble salts can be moved to any part of the soil profile.

A soil that contains excessive amounts of soluble salts is called a saline soil. One that contains excessive amounts of absorbed sodium is called an alkali soil. A soil that contains excessive amounts of both soluble salts and alkali is referred to as a saline-alkali soil.

Three classes of salt and alkali content have been used in this survey. These classes are as follows:

Nonsaline-nonalkali soils are those that are free of excess salts and alkali and contain less than 0.15 percent salts. The conductivity of the saturation extract is less than 4 millimhos per centimeter at 25 degrees C, and the content of exchangeable sodium is less than 15 percent.

Slightly saline-alkali soils are those that contain 0.15 to 0.35 percent salts or in which the conductivity of the saturation extract is 4 to 8 millimhos per centimeter at 25 degrees C. The content of exchangeable sodium is 15 to 20 percent for soils that are moderately coarse, medium, moderately fine, and fine textured.

Strongly saline-alkali soils are those that contain more than 0.65 percent salts or in which the conductivity of the saturation extract is more than 16 millimhos per centimeter at 25 degrees C. The content of exchangeable sodium is more than 25 percent for soils that are moderately coarse, medium, moderately fine, and fine textured.

Although a distinct gap occurs between the second and third classes, an intermediate, or moderate, class is not needed in this survey area because a very small percentage of the samples analyzed was moderately saline-alkali.

Some soils mapped as slightly saline-alkali are free of excess salts and alkali in the upper 4 or 5 inches, but they contain slight or moderate concentrations just below the plow layer. Several soils mapped as strongly saline-alkali are only slightly affected in the plow layer.

Soils differ in the kinds of salt they contain and in the practices needed for improvement; however, some general guidelines can be given. A good supply of irrigation water and adequate drainage must be provided to reclaim any soil in this survey area. The most common method of applying water for reclamation is leveling the areas to a uniform grade and then flooding them between border dikes. If drainage is adequate and large amounts of water are used, this method is effective in leaching the soluble salts out of the root zone.

Application of plant nutrients.—Most crops in the survey area will respond to solid or liquid fertilizer. Specific fertilizer requirements are based upon soil samples or plant tissue analyses. Applications of phosphorus and nitrogen increase production of small grain and aid in establishing alfalfa. Established alfalfa, unless seeded in combination with grass, usually only needs applications of phosphorus throughout its stand duration.

Erosion control.—Protection of the surface layer from water erosion and soil blowing is important because the surface layer contains most of the organic matter and is generally more fertile than the rest of the soil. Soil blowing can be controlled by leaving the plant cover on the soil surface and by using minimum tillage during windy periods of the year. Control of water erosion generally is accomplished by leveling and applying irrigation water at the proper rate.

Pasture management.—Proper pasture management consists of grazing at an intensity that maintains a prolonged stand of high quality grasses and legumes, protects the soil from erosion, and limits water losses. Rotating grazing among several pastures permits the regrowth of plants. Grazing when pastures are too wet results in compaction and deterioration of the soil structure and reduces the water intake rate of the soil.

Increased yields generally are obtained when commercial fertilizer or barnyard manure is applied. Droppings of manure can be spread with a drag spring. Weeds generally are controlled by mowing.

The frequency of irrigation of pasture should vary according to soil texture, daylight hours, temperature, and plant growth and vigor. Irrigate before the soil moisture is reduced to less than 50 percent of the available water capacity.

Hayland management.—Proper hayland management insures the prolonged life of desirable forage plants, maintains or improves the quality of forage, protects the soil from erosion, and limits water losses.

Alfalfa hay is grown on most of the hayland in the survey area. High quality, certified, inoculated seeds of locally adapted species produce the highest yields during the relatively short growing season. The frequency and amount of irrigation water needed depend on the available water capacity of the soil and the rate of evapotranspiration.

Land leveling, grading, shaping, and subsoiling should be completed before final seedbed preparation. An annual crop should be grown for 1 year before establishing alfalfa. In general, yields are increased with the application of fertilizer. For the highest quality forage, alfalfa should be harvested at about one-tenth bloom or when new crown buds are 1 to 1.5 inches long.

Aftermath grazing can be used in fall or winter. Stubble should be left at a height of 3 to 4 inches for protection from erosion. Plants should not be grazed late in winter or early in spring, when they have started new growth. Grazing at this time depletes nutrient reserves in the roots, which can damage the stand and reduce forage production.

Drainage.—Land adjacent to flood plains of perennial and intermittent streams usually has a seasonal high water table from December to July. This water table rises in the fall when evapotranspiration decreases and is at its minimum depth in spring as a result of runoff. Soils that are flooded naturally or by seasonal irrigation require surface drainage.

Field ditch mains or laterals are needed to dispose of excess surface or subsurface water, to intercept ground water, to control ground water levels, and to leach salt and alkali from the soils.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the section "Detailed soil map units."

Rangeland

About 89 percent of the survey area is rangeland. About 65 percent of the agricultural income is derived from livestock, principally cattle. Some sheep are raised also. Ranches vary in size from about 5,000 to 250,000 acres. Most of the rangeland is administered by the Bureau of Land Management and the Forest Service.

On many ranches the forage produced on rangeland is supplemented by crop stubble and small grain. In winter the native forage is often supplemented by hay and protein concentrate. On some ranches calves and yearlings are creep fed to increase their market weight.

Grazing management should be at an intensity that maintains enough cover to protect the soil and maintains or improves the quantity and quality of desirable vegetation. This management applies to all grazing animals, including livestock, game animals, and wild horses.

The most effective way to achieve good management of livestock grazing is to use a planned grazing system. This is a system in which two or more grazing units are alternately rested from grazing in a planned sequence over a period of years. The rest period should extend at least through the growing season of the key plants. To provide uniform distribution of grazing, stock water developments, fencing, salting, or stock trails may also be needed.

Sometimes it is feasible to apply practices such as brush management or rangeland seeding to accelerate range improvement. Brush management should be applied when less desirable woody species increase to excessive amounts. This practice can be effectively planned and applied to benefit both livestock and wildlife while reducing sedimentation and improving watershed quality.

Use of chemicals is effective in brush management. If chemicals are applied according to the manufacturer's recommendations and at the proper time, good results can be expected. There must be an adequate amount of desirable plant species in the understory to respond to the treatment. Prescribed burning can also be used in brush management. It is relatively inexpensive but requires precautions. A good understory plant community is needed to provide fuel, and proper timing of the burning is critical. Mechanical treatment practices, such as plowing, chaining, or beating, are effective on certain sites, but the cost is high.

Rangeland seeding should be applied when the range has deteriorated to an extent that desirable plant species are not present. Sites to be seeded should be evaluated to determine adapted species and proper seeding techniques. The success of rangeland seeding depends upon the amount of moisture available during the growing season. Only about a third of the survey area receives enough precipitation to make seeding feasible.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 6 shows, for each soil, the range site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. Only those soils that are used as or are suited to rangeland are listed. Explanation of the column headings in table 6 follows.

A *range site* is a distinctive kind of rangeland that produces a characteristic natural plant community that differs from natural plant communities on other range sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was established during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important.

Total production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a

normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Dry weight is the total annual yield per acre reduced to a common percent of air-dry moisture.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community in a given use.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, reduction of undesirable brush species, conservation of water, and control of water erosion and soil blowing. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Woodland Management and Productivity

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, t, d, c, s, f, and r.

In table 7, *slight*, *moderate*, and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *windthrow hazard* are based on soil characteristics that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that few trees may be blown down by strong winds; *moderate*, that some trees will be blown down during periods of excessive soil wetness and strong winds; and *severe*, that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. Most of the woodland in Lyon County is Pinyon pine and Utah juniper. The site index for these species is based on their average spacing and trunk diameter at a height of 1 foot. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Windbreaks and Environmental Plantings

John Schelling, district conservationist, Soil Conservation Service, helped write this section.

Windbreaks in this survey area are limited. They may be desirable for protection of livestock and buildings; however, all windbreaks in this area need to be irrigated.

Species adapted to the specific soils should be selected. Species suited to deep, well drained soils include Fremont cottonwood (male), Siberian elm, Scotch pine, cotoneaster, and Siberian peashrub. Poplar, cottonwood, Russian-olive, golden willow, buffaloberry, redosier dogwood, and honeysuckle are suited to wet soils. Species adapted to saline-alkali soils include Siberian elm, mulberry, Russian-olive, buffaloberry, fourwing saltbush, and big saltbush. Species suited to shallow soils include honeylocust, Rocky Mountain juniper, chokecherry, cotoneaster, currant, Siberian peashrub, and pyracantha.

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, hold snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To insure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 8 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a nursery.

Recreation

The survey area contains several areas that have recreational potential. These vary from mountainous areas to valley meadows and banks of meandering rivers. Outdoor recreation includes hunting, fishing, picnicking, riding, hiking, hunting for rocks and artifacts, and visiting mining towns and ghost towns. The survey area has abundant open space, much of which is public lands. Wooded mountains, hills covered with sagebrush, treelined rivers and streams, fertile valleys, and barren hills are each an important part of the landscape.

State parks in the area include Fort Churchill, Silver Springs Beach (Lahontan Reservoir), Dayton Historic Park, and the Mason Valley Wildlife Management Area. Recreational facilities maintained by the Forest Service are campgrounds at Pine Grove and Desert Creek and a site 2 miles east of Sonoma near Sweetwater.

Historical sites include Como, Yerington, Mason Valley, Buckskin, Ramsey, Talapoosa, Red Mountain, Ludwig, Pine Grove, and the Fremont and Pony Express trails.

The west fork of the Walker River flows through Smith Valley and Wilson Canyon. It is easily accessible and offers good scenic and recreational potential at various selected sites.

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but

remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Wildlife Habitat

Wildlife is a valuable resource in the survey area. It provides opportunities for such outdoor activities as fishing, bird watching, and photography.

Wildlife is a product of the soil and, like crops, responds to good management. The production of adapted wildlife generally is in balance with available essential food and cover. Most wildlife habitat is created, improved, or maintained by planting suitable vegetation or by manipulating existing vegetation to bring about the natural establishment of desired plants, or both. The complete habitat for a species of wildlife generally requires several kinds of soil and a variety of land uses. For this reason wildlife interpretations of the survey area can best be related to the map units described in the section "General soil map units."

In the following paragraphs the general map units are grouped into wildlife areas. These areas differ in potential species and environmental factors.

Wildlife Area 1 is made up of general map unit 1. The soils in this area are nearly level and are on slightly elevated lake plains and old lake bottoms. They are somewhat poorly drained. The native vegetation is mostly basin big sagebrush and basin wildrye on the slightly salt- and alkali-affected soils in this area and is black greasewood, alkali sacaton, and saltgrass on the strongly salt- and alkali-affected soils.

Wildlife species in this area include jackrabbit, coyote, and fox. Some quail are on or near the areas of cropland. Ditchbanks can be planted with desirable plants to make a more attractive habitat for quail and other openland wildlife. A few mule deer use this area in winter.

The availability of water is the main concern for management of wildlife in this area. The rangeland should be managed to avoid increasing the salt and alkali content of the soils, which results in a less desirable plant community. Small ponds constructed to provide livestock and wildlife watering facilities can be stocked with fish.

Wildlife Area 2 is made up of unit 2. The soils in this area are nearly level and are on flood plains of perennial streams and creeks and on old lake plains. This area is suited to a wide variety of wildlife because of the amount of water available and because of the wet, meadow-type vegetation and scattered patches of willows on the poorly drained soils and the big sagebrush, buffaloberry, and basin wildrye on the better drained soils. Most of the soils in this area are cultivated.

Wildlife species in this area include beaver, cottontail, jackrabbit, mule deer, quail, coyote, ducks, geese, muskrats, mink, and bobcat. Most of the wildlife is dependent on the meadows; therefore, management should be directed toward improving or maintaining the meadows and shallow water areas. Proper use of pastureland and rangeland is needed to avoid accelerated stream entrenchment and deterioration of the habitat. The Walker and Carson Rivers in this area support trout and catfish.

Wildlife Area 3 is made up of units 4 and 16. The soils in this area are nearly level and moderately sloping and are on stabilized dunes and sides of terraces on old wind-worked lake terraces and alluvial fans. The native vegetation is mostly Indian ricegrass, shadscale, and fourwing saltbush. The wildlife populations are concentrated near the bodies of water in this area.

Wildlife species in this area include jackrabbit, cottontail, fox, coyote, and quail. This area can attract wildlife if water and vegetation that provides food and cover are available. Small areas of the soils in this area are irrigated.

Wildlife Area 4 is made up of units 3, 5, 7, and 11. This area is on alluvial fans, terraces, and low-lying foothills. The native vegetation is variable. The types of vegetation include big sagebrush, low sagebrush, grass, and some small areas of pinyon and juniper. Because of a shortage of water, the wildlife in this area is not well distributed. Some of the area is used as cropland.

Wildlife species in this area include jackrabbit, coyote, and bobcat. Quail are on or near the areas of cropland. In cultivated areas, fence rows and ditchbanks planted with desirable vegetation provide a more attractive habitat for quail and other openland wildlife.

Wildlife Area 5 is made up of units 6, 8, and 10. This area is on hills and mountains and on alluvial fans and terraces that receive little precipitation. The native vegetation is mostly Bailey greasewood, shadscale, and Indian ricegrass. A few areas are used as cropland.

Wildlife species in this area include jackrabbit, coyote, chukar, and fox. The availability of water is the main concern for management of wildlife in this area. The wildlife habitat can be enhanced by properly locating watering facilities.

Wildlife Area 6 is made up of units 9, 12, and 13. This area is on moderately sloping to steep foothills and in low-lying areas on mountainsides. The native vegetation is mostly pinyon with an understory of antelope bitterbrush, big sagebrush, low sagebrush, and grasses. Included in this area are seep areas that support quaking aspen.

Wildlife species in this area include jackrabbit, cottontail, deer, coyote, bobcat, sage grouse, chukar, and mountain lion. Drainageways, seeps, and springs provide some water for wildlife in this area; however, the wildlife habitat can be enhanced by properly locating watering facilities. Proper rangeland use helps to preserve the habitat.

Wildlife area 7 is made up of unit 14. This area is in steep and very steep, high-lying areas on mountainsides. The native vegetation is mostly mountain big sagebrush and curlleaf mountainmahogany and an understory of western needlegrass and basin wildrye. The drainageways in this area are the main source of water; however, springs also provide some water.

Included in this area are small, wet meadows; pockets of snow that support snowberry and whitebark pine; and ridges that support low sagebrush. These areas are significant to the overall potential for habitat. The small meadows need to be protected from gullying. Proper rangeland use is needed to maintain the habitat.

Wildlife species in this area include mule deer, sage grouse, chukar, jackrabbit, cottontail, coyote, bobcat, and mountain lion.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are Sandberg bluegrass, Indian ricegrass, and globemallow.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pinyon and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are mountainmahogany, bitterbrush, snowberry, and big sagebrush.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants, or both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife

attracted to such areas are ducks, geese, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, sage grouse, meadowlark, and lark bunting.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and

construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic supporting capacity.

Sanitary Facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated

slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to

40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, and terraces and diversions.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils are grouped according to the following distinctions:

1. Sands, coarse sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Sandy loams, coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.

5. Loamy soils that are less than 18 percent clay and less than 5 percent finely divided calcium carbonate and sandy clay loams and sandy clays that are less than 5 percent finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Loamy soils that are 18 to 35 percent clay and less than 5 percent finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.

7. Silty clay loams that are less than 35 percent clay and less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.

8. Stony or gravelly soils and other soils not subject to wind erosion.

Soil and Water Features

Tables 16 and 17 give estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 16.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An

artesian water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given in table 17 if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Cemented pans are cemented or indurated subsurface layers within a depth of 5 feet. Such pans cause difficulty in excavation. Pans are classified as thin or thick. A *thin* pan is less than 3 inches thick if continously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A *thick* pan is more than 3 inches thick if continously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*18*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 18, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Aridisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Orthid (*Orth*, meaning true, plus *id*, from Aridisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Camborthids (*Camb*, meaning change, plus *orthid*, a suborder of the Aridisols).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Camborthids.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, mixed, mesic Typic Camborthids.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual* (*17*). Many of the technical terms used in the descriptions are defined in *Soil Taxonomy* (*18*). Unless otherwise stated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Ackley Series

The Ackley series consists of very deep, well drained, moderately permeable soils on alluvial fans and terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Ackley gravelly sandy loam, 2 to 4 percent slopes, about 950 feet west of the center of sec. 29, T. 16 N., R. 21 E.

A11—0 to 1 inch; grayish brown (2.5Y 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots;

many very fine interstitial pores; 15 percent pebbles; neutral; abrupt wavy boundary.

A12—1 to 3 inches; light brownish gray (2.5Y 6/2) gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; moderate medium platy structure; soft, very friable, nonsticky and nonplastic; common medium roots and many fine and very fine roots; many fine and very fine vesicular pores; 15 percent pebbles; neutral; abrupt wavy boundary.

A13—3 to 10 inches; grayish brown (2.5Y 5/2) gravelly sandy loam, very dark grayish brown (2.5Y 3/2) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common coarse, medium, fine, and very fine roots; many very fine interstitial pores and common fine tubular pores; 15 percent pebbles; neutral; clear wavy boundary.

B1t—10 to 17 inches; grayish brown (2.5Y 5/2) sandy loam, very dark grayish brown (2.5Y 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common coarse, medium, fine, and very fine roots; many very fine interstitial pores and common fine tubular pores; common very thin clay bridges; neutral; abrupt wavy boundary.

B2t—17 to 27 inches; yellowish brown (10YR 5/4) heavy loam, brown (10YR 4/3) moist; strong medium subangular and angular blocky structure; hard, friable, sticky and plastic; few medium roots and common fine and very fine roots; common fine and very fine tubular pores; many thin and moderately thick clay films on peds and lining pores; neutral; clear wavy boundary.

B3t—27 to 34 inches; brown (10YR 5/3) loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium roots and common fine and very fine roots; common fine and very fine tubular pores; common thin clay bridges on peds and lining pores; neutral; clear wavy boundary.

C1ca—34 to 47 inches; light yellowish brown (2.5Y 6/4) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and very fine roots; common fine and very fine tubular pores; slightly effervescent; moderately alkaline; gradual wavy boundary.

C2ca—47 to 60 inches; light yellowish brown (2.5Y 6/4) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; common fine and very fine tubular pores; slightly effervescent; moderately alkaline.

Thickness of the solum is 20 to 40 inches. The solum is neutral or slightly acid. Depth to carbonates is 30 to 50 inches.

The Bt horizon is sandy loam, sandy clay loam, or loam that averages 18 to 27 percent clay.

The C horizon is neutral to strongly alkaline and is slightly to strongly effervescent. In some pedons gypsum crystals are present in the lower part of the C horizon.

Ackley Variant

The Ackley Variant consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans. These soils formed in alluvium derived from basic igneous rock overlying gypsiferous parent material. Slopes are 0 to 2 percent.

Typical pedon of Ackley Variant sandy loam, in an area of Ackley-Ackley Variant complex, about 950 feet south and 200 feet west of the northeast corner of sec. 32, T. 16 N., R. 21 E.

A11—0 to 3 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few medium and many fine and very fine interstitial pores; mildly alkaline; abrupt smooth boundary.

A12—3 to 7 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common fine and many very fine roots; many fine and very fine interstitial pores; neutral; clear wavy boundary.

B2t—7 to 16 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; hard, friable, sticky and plastic; few medium roots and common fine and very fine roots; many medium fine and very fine tubular pores; common thin clay films on peds and lining pores; mildly alkaline; clear wavy boundary.

B3tca—16 to 21 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, sticky and plastic; few medium roots and common fine and very fine roots; few fine and many very fine tubular pores; few thin clay films on peds; strongly effervescent; strongly alkaline; abrupt wavy boundary.

C1ca—21 to 25 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots and common fine and very fine roots; many very fine interstitial pores; violently effervescent; strongly alkaline; abrupt smooth boundary.

IIC2—25 to 38 inches; white (10YR 8/2) fine sandy loam, very pale brown (10YR 7/4 and 8/3) moist; massive; hard, very firm, nonsticky and nonplastic;

many very fine interstitial pores; 50 to 80 percent of material is gypsum; slightly effervescent in spots; mildly alkaline; clear wavy boundary.

IIC3—38 to 60 inches; white (10YR 8/2) fine sandy loam, very pale brown (10YR 7/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; 50 to 80 percent of material is gypsum; slightly effervescent to strongly effervescent; mildly alkaline.

Depth to the gypsiferous substratum is 20 to 40 inches. Reaction is mildly alkaline or moderately alkaline.

The Bt horizon is loam, silt, or sandy loam that is 18 to 26 percent clay.

The IIC horizon is 20 to 80 percent gypsum and is noneffervescent to strongly effervescent.

Appian Series

The Appian series consists of very deep, well drained, moderately slowly permeable soils on lake terraces. These soils formed in loamy alluvium over lacustrine sediment derived dominantly from granitic rocks. Slopes are 0 to 2 percent.

Typical pedon of Appian loam, 1,200 feet south and 1,200 feet west of the northeast corner of sec. 33, T. 14 N., R. 25 E.

Ap—0 to 8 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine interstitial pores; slightly effervescent in spots; strongly alkaline; abrupt smooth boundary.

B2t—8 to 13 inches; brown (10YR 5/3) heavy sandy clay loam, dark brown (10YR 4/3) moist; moderate coarse prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; few medium roots and many fine and very fine roots; common fine and many very fine tubular pores; many thin and moderately thick clay films; slightly effervescent; strongly alkaline; abrupt smooth boundary.

B3tca—13 to 18 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to strong medium angular blocky; hard, friable, sticky and plastic; few medium and fine roots and many very fine roots; common fine and many very fine tubular pores; common thin clay films; strongly effervescent white lime filaments; matrix is slightly effervescent; strongly alkaline; abrupt smooth boundary.

IIC1—18 to 60 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; common fine distinct dark brown (7.5YR 4/4) iron mottles; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many fine and very fine interstitial pores; moderately alkaline.

Thickness of the solum and depth to the sandy IIC horizon is 7 to 18 inches. The IIC horizon generally is noncalcareous, but it is calcareous in the upper part of some pedons.

The Bt horizon is clay loam or sandy clay loam that is 27 to 35 percent clay. Structure is prismatic or columnar. Content of exchangeable sodium is 20 to 50 percent. Reaction is strongly alkaline or very strongly alkaline.

The IIC horizon is sand or coarse sand and commonly contains relict iron mottles. Thin strata of coarse sand, fine sand, loamy fine sand, fine sandy loam, or sandy loam are in some pedons. Reaction is mildly alkaline or moderately alkaline.

Bango Series

The Bango series consists of very deep, well drained, moderately slowly permeable soils on old lake terraces. These soils formed in loamy alluvium over stratified lacustrine sediment derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Bango sandy loam, about 200 feet east of U.S. Highway 95A and about 100 feet north of Spruce Avenue in Silver Springs, 800 feet east and 2,110 feet north of the southwest corner of sec. 30, T. 18 N., R. 25 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium and thin platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; moderately alkaline; abrupt wavy boundary.

B21t—2 to 5 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; strong medium prismatic structure; hard, friable, sticky and plastic; few fine and many very fine roots; common very fine tubular pores; common thin clay films on faces of peds; moderately alkaline; clear smooth boundary.

B22t—5 to 13 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate coarse prismatic structure; hard, very friable, sticky and plastic; common medium roots and many fine and very fine roots; few medium and fine and many very fine tubular pores; common thin clay films on faces of peds; moderately alkaline; clear smooth boundary.

B3t—13 to 18 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine roots; many fine and very fine tubular pores; moderately alkaline; clear smooth boundary.

C1—18 to 26 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and

nonplastic; few medium roots and common fine and very fine roots; many fine and very fine tubular pores; moderately alkaline; clear smooth boundary.

IIC2—26 to 33 inches; pale brown (10YR 6/3) clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots and common fine and very fine roots; many fine and very fine tubular pores; slightly effervescent; moderately alkaline; clear smooth boundary.

IIIC3—33 to 50 inches; light brownish gray (10YR 6/2) silty clay, dark brown (10YR 4/3) moist; white (10YR 8/1) gypsum veins; massive; hard, friable, sticky and plastic; common fine and many very fine roots; many fine and very fine tubular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

IVC4—50 to 60 inches; light brown (7.5YR 6/4) sand, brown (7.5YR 5/2) moist; many large prominent relict iron mottles that are strong brown (7.5YR 5/6) when moist; massive; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; mildly alkaline.

The solum is 6 to 20 inches thick.

The B2t horizon is loam, clay loam, or sandy clay loam that is 20 to 30 percent clay. Reaction is moderately alkaline or strongly alkaline.

The C horizon is stratified sediment that averages 18 to 30 percent clay. Relict mottles are common in most pedons. Reaction is moderately alkaline or strongly alkaline.

Berit Series

The Berit series consists of very shallow, somewhat excessively drained, moderately slowly permeable soils on mountainsides. These soils formed in residuum and colluvium derived from granite. Slopes are 4 to 50 percent.

Typical pedon of Berit extremely stony loam, 30 to 50 percent slopes, in an area of Minneha-Berit-Wile association, about 2,500 feet west and 2,550 feet north of the southeast corner of sec. 36, T. 9 N., R. 25 E.

A11—0 to 3 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial pores; 30 percent pebbles, 30 percent cobbles, and 20 percent stones; slightly acid; clear smooth boundary.

B1t—3 to 5 inches; brown (10YR 5/3) extremely cobbly sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and many very fine roots; few fine and common very fine tubular pores; many thin clay bridges between mineral grains; 40 percent pebbles, 20 percent cobbles, and 10 percent stones; neutral; clear wavy boundary.

B2t—5 to 7 inches; yellowish brown (10YR 5/4) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; hard, friable, sticky and plastic; common medium and fine roots and many very fine roots; few fine and common very fine tubular pores; continuous thin and moderately thick bridges and clay films on peds and in pores; 40 percent pebbles, 20 percent cobbles, and 10 percent stones; slightly acid; abrupt wavy boundary.

Cr—7 to 20 inches; soft, weathered granitic bedrock; clay coatings and roots extend into fractures.

Thickness of the solum and depth to the paralithic contact are 4 to 12 inches. Reaction is slightly acid or neutral.

The Bt horizon is sandy clay loam or clay loam that is 50 to 80 percent rock fragments and 25 to 35 percent clay.

Biddleman Series

The Biddleman series consists of very deep, well drained, moderately slowly permeable soils on old lake terraces and alluvial fans. These soils formed in alluvium over shoreline gravel derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Biddleman gravelly sandy loam, 0 to 8 percent slopes, in an area of Biddleman association, 300 feet south and 2,300 feet east of the northwest corner of sec. 1, T. 19 N., R. 24 E.

A11—0 to 3 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak medium and thick platy structure; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine vesicular pores; 20 percent pebbles; strongly effervescent; moderately alkaline; abrupt smooth boundary.

B2t—3 to 7 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure; slightly hard, friable, sticky and plastic; common fine and very fine roots; many very fine interstitial pores; common thin clay films on peds; 25 percent pebbles; slightly effervescent; moderately alkaline; clear smooth boundary.

B3t—7 to 9 inches; brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common fine and many very fine roots; many very fine interstitial pores; few thin clay films lining pores; 35 percent pebbles; slightly

effervescent; moderately alkaline; clear smooth boundary.

IIC1ca—9 to 20 inches; pale brown (10YR 6/3) very gravelly loamy sand with a thin lense of very gravelly sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many very fine interstitial pores; 55 percent pebbles and 5 percent cobbles; strongly effervescent; moderately alkaline; gradual wavy boundary.

IIIC2—20 to 60 inches; extremely gravelly sand and very gravelly loamy sand, colors are those of uncoated mineral grains; single grain; loose, nonsticky and nonplastic; few fine and common very fine roots; many fine and very fine interstitial pores; 65 percent pebbles and 5 percent cobbles; mildly alkaline.

Thickness of the solum is 8 to 12 inches. Reaction is moderately alkaline or strongly alkaline.

The Bt horizon is gravelly clay loam, gravelly loam, or gravelly sandy clay loam that averages 20 to 30 percent clay. Content of exchangeable sodium is 15 to 25 percent.

The C horizon is highly stratified, but it averages sand that is 60 to 80 percent rock fragments, mainly pebbles.

Bluewing Series

The Bluewing series consists of very deep, excessively drained, very rapidly permeable soils on broad alluvial fans. These soils formed in alluvium derived from mixed rock sources. Slopes are 2 to 8 percent.

Typical pedon of Bluewing very gravelly sand, 2 to 8 percent slopes, about 1,400 feet east and 300 feet north of the southwest corner of sec. 12, T. 17 N., R. 24 E.

A1—0 to 3 inches; grayish brown (2.5Y 5/2) very gravelly sand, very dark grayish brown (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; many fine interstitial pores; 35 percent pebbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

C1—3 to 5 inches; light brownish gray (2.5Y 6/2) gravelly sandy loam, very dark grayish brown (2.5Y 3/2) moist; moderate thick platy structure; slightly hard, very friable, slightly sticky and nonplastic; few medium roots; many fine vesicular pores; 20 percent pebbles; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C2ca—5 to 14 inches; grayish brown (2.5Y 5/2) extremely gravelly light sandy loam, very dark grayish brown (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots and many very fine and fine roots; many fine and medium interstitial pores; 65 percent pebbles; thin coatings of lime on pebbles; strongly effervescent; strongly alkaline; abrupt smooth boundary.

C3ca—14 to 42 inches; grayish brown (2.5Y 5/2) extremely gravelly loamy coarse sand with strata of pebbles, very dark grayish brown (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many fine and medium interstitial pores; 60 percent pebbles; thin coatings of lime on pebbles; strongly effervescent; strongly alkaline; gradual smooth boundary.

C4ca—42 to 60 inches; grayish brown (2.5Y 5/2), stratified extremely gravelly coarse sand, sand, and loamy sand, very dark grayish brown (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many fine and medium interstitial pores; 60 percent pebbles; thin coatings of lime on pebbles; violently effervescent; strongly alkaline.

The particle size control section is stratified very gravelly sand to extremely gravelly loamy coarse sand and averages 50 to 70 percent rock fragments. Reaction is neutral to strongly alkaline. In some pedons all or part of the A horizon has been removed by water erosion. Thin bands of soft, weathered shale are common in the C horizon in some pedons.

Bluewing Variant

The Bluewing Variant consists of very deep, well drained, very slowly permeable soils on dissected basin floors. These soils formed in lacustrine sediment derived from mixed rock sources. Slopes are 2 to 8 percent.

Typical pedon of Bluewing Variant clay, 2 to 8 percent slopes, about 750 feet east and 600 feet south of the northwest corner of sec. 17, T. 12 N., R. 24 E.

A1—0 to 3 inches; light brownish gray (10YR 6/2) clay, dark grayish brown (10YR 4/2) moist; strong very fine granular structure; slightly hard, friable, very sticky and slightly plastic; many very fine interstitial pores; moderately alkaline; abrupt smooth boundary.

C1—3 to 9 inches; brownish gray (10YR 6/2) clay, dark grayish brown (10YR 4/2) moist; moderate medium angular blocky structure; very hard, firm, very sticky and very plastic; few fine and very fine roots; many very fine tubular pores; few fine gypsum masses; moderately alkaline; clear smooth boundary.

C2—9 to 27 inches; light brownish gray (10YR 6/2) clay, dark grayish brown (10YR 4/2) moist; thinly bedded lake sediment, slightly altered by weathering; very hard, firm, very sticky and very plastic; many medium roots and common fine and very fine roots in cracks and between plates; neutral; clear smooth boundary.

C3—27 to 60 inches; light brownish gray (10YR 6/2) clay, dark grayish brown (10YR 4/2) moist; thinly bedded lake sediment; few medium and coarse

black (10YR 2/1) manganese stains; extremely hard, firm, very sticky and very plastic; neutral.

The particle size control section is clay or silty clay that is 40 to 60 percent clay. The reaction is neutral to moderately alkaline. The profile generally is noneffervescent, but it is slightly effervescent in a few areas.

Bradshaw Series

The Bradshaw series consists of deep, well drained, moderately rapidly permeable soils on mountainsides. These soils formed in residuum and colluvium derived from andesite. Slopes are 15 to 50 percent.

Typical pedon of Bradshaw extremely stony loam, in an area of Bradshaw-Hartig association, about 300 feet east and 3,200 feet north of the southwest corner of sec. 2, T. 15 N., R. 22 E.

A11—0 to 3 inches; grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many medium and fine interstitial pores; 25 percent pebbles, 20 percent cobbles, and 20 percent stones; neutral; abrupt wavy boundary.

A12—3 to 8 inches; grayish brown (10YR 5/2) very stony loam, dark brown (10YR 3/3) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium roots and many fine and very fine roots; many fine and very fine interstitial pores; 25 percent pebbles, 20 percent cobbles, and 15 percent stones; neutral; clear wavy boundary.

A13—8 to 15 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common coarse and medium roots and many fine and very fine roots; many fine and very fine tubular pores; 25 percent pebbles, 25 percent cobbles, and 15 percent stones; neutral; clear wavy boundary.

B2—15 to 24 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few coarse roots, common medium roots, and many fine and very fine roots; many fine and very fine tubular pores; 25 percent pebbles, 25 percent cobbles, and 2 percent stones; neutral; clear wavy boundary.

C1—24 to 28 inches; pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist; massive; hard, friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; many very fine interstitial pores; 35 percent pebbles, 30 percent cobbles, and 2 percent stones; neutral; clear wavy boundary.

C2—28 to 43 inches; light gray (10YR 7/2) extremely cobbly loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; common very fine tubular pores; 35 percent pebbles, 30 percent cobbles, and 2 percent stones; neutral; abrupt wavy boundary.

R—43 inches; fractured andesite.

The mollic epipedon is 10 to 20 inches thick. The solum is 24 to 32 inches thick. The particle size control section averages extremely cobbly fine sandy loam or extremely cobbly loam that is 60 to 80 percent rock fragments and 12 to 18 percent clay. Depth to bedrock is 40 to 60 inches or more.

Burnborough Series

The Burnborough series consists of very deep, well drained, moderately permeable soils on hills and mountainsides. These soils formed in residuum and colluvium derived from andesite and rhyolite. Slopes are 30 to 50 percent.

Typical pedon of Burnborough very stony loam, in an area of Burnborough-Glean association, about 1,650 feet south of benchmark 8652, T. 8 N., R. 24 E.

A11—0 to 3 inches; dark grayish brown (10YR 4/2) very stony loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 40 percent pebbles, 15 percent cobbles, and 20 percent stones; neutral; abrupt smooth boundary.

A12—3 to 7 inches; dark grayish brown (10YR 4/2) extremely gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and many very fine roots; common fine and many very fine interstitial pores; 40 percent pebbles, 10 percent cobbles, and 10 percent stones; neutral; clear wavy boundary.

B1t—7 to 10 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium and fine roots and many very fine roots; common fine and very fine tubular pores; common very thin clay bridges; 40 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

B21t—10 to 21 inches; brown (10YR 5/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; few coarse roots and common medium, fine, and very fine roots; common fine and many very fine tubular

pores; continuous thin and very thin clay bridges; 40 percent pebbles, 10 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.

B22t—21 to 42 inches; brown (10YR 5/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; very hard, friable, sticky and plastic; few fine and common very fine roots; few fine and common very fine tubular pores; continuous thin clay bridges and common thin and moderately thick clay films on peds and lining pores; 40 percent pebbles, 10 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.

C1—42 to 60 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; massive; hard, very friable, nonsticky and nonplastic; few fine and very fine roots; few fine and very fine tubular pores; 40 percent pebbles, 10 percent cobbles, and 5 percent stones; neutral.

The mollic epipedon is 10 to 20 inches thick and includes the B1t horizon.

The solum is 40 to 80 inches thick. Depth to bedrock is 60 to 80 inches. Reaction is slightly acid or neutral.

The B2t horizon is very gravelly loam or very gravelly clay loam that is 35 to 60 percent rock fragments and 18 to 35 percent clay.

The C horizon is present in most pedons.

Cagle Series

The Cagle series consists of moderately deep, well drained, slowly permeable soils on mountains. These soils formed in colluvium and residuum derived from andesite. Slopes are 15 to 50 percent.

Typical pedon of Cagle very stony clay loam, in an area of Cagle-Nosrac association, about 1,050 feet north and 400 feet east of the southwest corner of sec. 5, T. 14 N., R. 22 E.

A1—0 to 2 inches; grayish brown (10YR 5/2) very stony clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, sticky and plastic; many fine and very fine roots; many fine and very fine interstitial pores; 30 percent pebbles, 10 percent cobbles, and 15 percent stones; neutral; abrupt wavy boundary.

B21t—2 to 15 inches; brown (10YR 4/3) gravelly clay, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common medium, fine, and very fine roots; many fine and very fine and common medium tubular pores; many thin and moderately thick clay films on peds and lining pores; 20 percent pebbles; neutral; clear wavy boundary.

B22t—15 to 30 inches; light yellowish brown (10YR 6/4) very gravelly clay, yellowish brown (10YR 5/4) moist; strong medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few medium roots and common fine and very fine roots; many fine and very fine tubular pores; common very thin clay films on peds and lining pores; 25 percent pebbles, 10 percent cobbles, and 5 percent stones; neutral; abrupt wavy boundary.

Cr—30 inches; weathered andesite.

The mollic epipedon is 7 to 18 inches thick. Thickness of the solum and depth to soft bedrock are 20 to 40 inches. Reaction is slightly acid to mildly alkaline.

The upper part of the B2t horizon is gravelly clay or gravelly clay loam, and the lower part is very gravelly clay, extremely gravelly clay, or very cobbly clay. The horizon averages 35 to 50 percent clay and 15 to 35 percent rock fragments.

Celeton Series

The Celeton series consists of very shallow, somewhat excessively drained, rapidly permeable soils on uplands. These soils formed in residuum derived from diatomaceous earth. Slopes are 8 to 30 percent.

Typical pedon of Celeton very cobbly sandy loam, 8 to 30 percent slopes, about 1,000 feet south and 1,150 feet west of the northeast corner of sec. 1, T. 19 N., R. 25 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 25 percent pebbles and 15 percent cobbles; strongly effervescent; strongly alkaline; clear smooth boundary.

C1—2 to 9 inches; white (10YR 8/1) sandy loam with about 85 percent platelets of soft diatomaceous earth fragments less than 1 millimeter thick; massive; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; many fine and very fine interstitial pores; strongly effervescent; strongly alkaline; clear smooth boundary.

Cr—9 to 60 inches; white (10YR 8/1), unweathered platy diatomaceous earth; root mats occur between plates in the upper few inches of the horizon; noneffervescent.

Depth to the paralithic contact is 4 to 14 inches. Reaction is mildly alkaline to strongly alkaline.

The C1 horizon is 80 to 90 percent diatomaceous earth fragments, most of which are soft, and it is 5 to 15 percent clay.

Charlebois Series

The Charlebois series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans and lake terraces. These soils formed in alluvium

derived from andesite with components of pyroclastics and volcanic ash. Slopes are 0 to 4 percent.

Typical pedon of Charlebois loam, 0 to 2 percent slopes, about 4,500 feet east of the northwest corner of sec. 18, T. 10 N., R. 24 E.

A1—0 to 2 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; many fine and very fine interstitial pores; neutral; abrupt smooth boundary.

B1t—2 to 8 inches; grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; few fine and common very fine roots; few fine and many very fine tubular pores; few thin clay films in pores; neutral; clear wavy boundary.

B21t—8 to 14 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium and fine angular blocky structure; hard, friable, sticky and plastic; few fine and many very fine roots; common fine and many very fine tubular pores; common thin clay films in pores and on peds; mildly alkaline; clear wavy boundary.

B22t—14 to 19 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, sticky and plastic; few fine and common very fine roots; many fine and very fine tubular pores; common thin clay films lining pores and on peds; mildly alkaline; abrupt wavy boundary.

C1sica—19 to 36 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, slightly sticky and plastic; few fine and many very fine roots; few fine and many very fine tubular pores; about 30 percent firm and brittle durinodes; slightly effervescent; moderately alkaline; gradual wavy boundary.

C2ca—36 to 60 inches; pale brown (10YR 6/3) loam, dark grayish brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and many very fine tubular pores; strongly effervescent; moderately alkaline.

The B2t horizon is 27 to 35 percent clay and less than 15 percent rock fragments. Reaction is neutral or mildly alkaline.

The C1sica horizon is 20 to 40 percent durinodes and 15 to 22 percent clay. Reaction is moderately alkaline or strongly alkaline.

Chill Series

The Chill series consists of very shallow, well drained, moderately slowly permeable soils on low hills. These soils formed in residuum derived from granitic bedrock. Slopes are 4 to 30 percent.

Typical pedon of Chill gravelly sandy loam, 8 to 15 percent slopes, in an area of Chill association, about 1,200 feet north and 2,500 feet east of the southwest corner of sec. 22, T. 17 N., R. 24 E.

A1—0 to 3 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; 30 percent fine pebbles; neutral; abrupt smooth boundary.

B2t—3 to 7 inches; brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many fine and very fine roots; common fine and very fine tubular pores; 25 percent pebbles; continuous very thin to moderately thick clay films on peds and lining pores; neutral; abrupt wavy boundary.

Cr—7 inches; weathered granitic bedrock with root mats and thin clay films lining fracture planes; hardness increases with depth.

Thickness of the solum and depth to a paralithic contact is 6 to 14 inches. The control section averages 18 to 27 percent clay and 15 to 35 percent rock fragments, mostly fine pebbles. The B2t horizon has 25 to 35 percent clay. Reaction is neutral or mildly alkaline throughout the profile.

Cleaver Series

The Cleaver series consists of shallow, well drained, slowly permeable soils on old alluvial fans. These soils formed in alluvium derived from basic igneous rock. Slopes are 2 to 30 percent.

Typical pedon of Cleaver gravelly sandy loam, 2 to 4 percent slopes, about 200 feet east and 50 feet south of the northwest corner of sec. 19, T. 16 N., R. 23 E.

About 85 percent of the surface is covered with a desert pavement 75 percent of which is pebbles and 10 percent is cobbles.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 50 percent pebbles; slightly effervescent; strongly alkaline; abrupt smooth boundary.

A2—2 to 3 inches; light gray (10YR 7/1) loam, grayish brown (10YR 5/2) moist; thin platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many fine and very fine vesicular pores; strongly effervescent; strongly alkaline; abrupt wavy boundary.

B2t—3 to 8 inches; brown (7.5YR 5/4) gravelly clay loam, dark brown (7.5YR 4/4) moist; weak medium and coarse subangular blocky structure; hard, friable, sticky and plastic; common medium and very fine roots and few fine roots; common very fine and fine tubular pores; continuous thin and moderately thick clay bridges; 20 percent pebbles; mildly alkaline; clear wavy boundary.

B3t—8 to 11 inches; light brown (7.5YR 6/4) gravelly loam, brown (7.5YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common medium and very fine roots and few fine roots; few fine and many very fine tubular pores; common thin clay bridges; 25 percent pebbles; lime on undersides of pebbles; strongly effervescent; neutral; abrupt wavy boundary.

C1sicam—11 to 21 inches; white indurated duripan broken in places by krotovinas; strongly effervescent; very strongly alkaline; gradual wavy boundary.

C2sicam—21 to 26 inches; white strongly cemented duripan; violently effervescent; strongly alkaline.

Thickness of the solum and depth to the duripan are 10 to 20 inches.

The Bt horizon averages gravelly loam or gravelly clay loam that is 25 to 35 percent clay and 15 to 35 percent rock fragments. Reaction is neutral to moderately alkaline.

Dalzell Series

The Dalzell series consists of moderately deep, somewhat poorly drained, moderately slowly permeable soils on lake terraces. These soils formed in lacustrine material derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Dalzell clay loam, 0 to 2 percent slopes, about 25 feet south and 2,000 feet west of the northeast corner of sec. 15, T. 12 N., R. 23 E.

A1—0 to 3 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; massive; hard, friable, sticky and slightly plastic; many fine and very fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline; clear wavy boundary.

B21t—3 to 10 inches; grayish brown (2.5Y 5/2) silty clay loam, brown (10YR 4/3) moist; weak fine prismatic structure; slightly hard, friable, sticky and slightly plastic; common very fine roots; few very fine and common very fine tubular pores; common thin clay films on peds and lining pores; strongly effervescent; strongly alkaline; clear wavy boundary.

B22t—10 to 17 inches; light gray (10YR 7/2) silty clay loam, light yellowish brown (2.5Y 6/4) moist; few coarse distinct brown (10YR 4/3) iron mottles; weak medium prismatic structure; hard, friable, sticky and slightly plastic; few very fine roots; few very fine tubular pores; many thin clay films on peds and lining pores; strongly effervescent; very strongly alkaline; gradual smooth boundary.

B3tsica—17 to 21 inches; light brownish gray (2.5Y 6/2) sandy loam, light yellowish brown (2.5Y 6/4) moist; common coarse distinct brown (10YR 4/3) iron mottles; massive; hard, firm, nonsticky and nonplastic; few very fine roots; few fine tubular pores; many thin clay films lining pores; 40 percent 1/4- to 1/2-inch extremely hard cylindrical durinodes; strongly effervescent; moderately alkaline; clear smooth boundary.

C1sicam—21 to 23 inches; very pale brown (10YR 7/3) strongly silica-cemented duripan, pale brown (10YR 6/3) and dark brown (10YR 3/3) moist; massive; extremely hard, extremely firm, nonsticky and nonplastic; few fine tubular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

C2sicam—23 to 28 inches; light gray (10YR 7/1) strongly silica-cemented duripan, pale brown (10YR 6/3) and brown (10YR 4/3) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine tubular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

C3—28 to 46 inches; light gray (10YR 7/1) sandy loam, very pale brown (10YR 7/3) and yellowish brown (10YR 5/4) moist; massive; hard, friable, nonsticky and nonplastic; few very fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

C4—46 to 52 inches; light olive brown (2.5Y 5/4) sandy loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; common very fine interstitial pores; strongly effervescent; very strongly alkaline; clear wavy boundary.

C5ca—52 to 63 inches; light olive brown (2.5Y 5/4) loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 20 percent strongly cemented lime nodules; strongly effervescent; very strongly alkaline.

Thickness of the solum and depth to the duripan are 20 to 40 inches.

The Bt horizon is heavy sandy loam to silty clay loam and averages 20 to 35 percent clay. Content of exchangeable sodium is 15 to 35 percent. Reaction is strongly alkaline or very strongly alkaline.

Delp Series

The Delp series consists of very deep, well drained, moderately rapidly permeable soils on partially stabilized dunes. These soils formed in eolian sand derived dominantly from granitic rock. Slopes are 0 to 15 percent.

Typical pedon of Delp loamy sand, in an area of Delp-Lox association, about 400 feet west and 110 feet north of the southeast corner of sec. 32, T. 13 N., R. 24 E.

A1—0 to 1 inch; light gray (10YR 7/2), uncoated wind-sorted loamy sand, light brownish gray (10YR 6/2) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.

B1—1 to 5 inches; light brownish gray (10YR 6/2) and light gray (10YR 7/2) sandy loam, brown (10YR 5/3) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine tubular pores and many very fine interstitial pores; few lamellae 1.5 millimeters thick with common thin clay bridges; strongly effervescent; strongly alkaline; abrupt wavy boundary.

B2t—5 to 11 inches; light gray (10YR 7/2) sandy loam with pale brown (10YR 6/3) light sandy clay loam lamellae 10 to 15 millimeters thick, brown (10YR 5/3) moist; weak coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and many very fine roots; many very fine interstitial pores; continuous thin and moderately thick clay bridges between lamellae; strongly effervescent; very strongly alkaline; abrupt wavy boundary.

B3—11 to 19 inches; light gray (10YR 7/2) loamy sand with pale brown (10YR 6/3) light sandy clay loam lamellae 1 to 5 millimeters thick, grayish brown (10YR 5/2) and brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and slightly plastic; few fine and many very fine roots; many very fine interstitial pores; common thin clay bridges between lamellae; strongly effervescent; very strongly alkaline; clear wavy boundary.

C1—19 to 27 inches; light gray (10YR 7/2) loamy sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; strongly effervescent; very strongly alkaline; clear wavy boundary.

C2—27 to 32 inches; light gray (10YR 7/2) cross-bedded loamy coarse sand with light brownish gray (10YR 6/2) lamellae 1 to 5 millimeters thick at textural breaks in the cross bedding, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; common thin clay bridges between lamellae; strongly effervescent; very strongly alkaline; abrupt wavy boundary.

C3—32 to 41 inches; light gray (10YR 7/2) loamy fine sand, light brownish gray (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; strongly effervescent; very strongly alkaline; clear wavy boundary.

C4—41 to 60 inches; light gray (10YR 7/2) loamy fine sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; few thin lamellae with thin clay bridges; strongly effervescent; very strongly alkaline.

Thickness of the solum is 15 to 35 inches.

The B2t horizon has lamellae of sandy clay loam or sandy loam in a matrix of sandy loam or loamy sand and averages 5 to 15 percent clay. Reaction is strongly alkaline or very strongly alkaline.

The C horizon is loamy fine sand to sand. Reaction is strongly alkaline or very strongly alkaline.

Devada Series

The Devada series consists of shallow, well drained, slowly permeable soils on low hills and mountains. These soils formed in residuum derived from andesite and rhyolite. Slopes are 4 to 50 percent.

Typical pedon of Devada very cobbly loam, 15 to 50 percent slopes, in an area of Devada-Rock outcrop association, about 4 miles south and 1 mile east of Dayton, about 150 feet north of the center of sec. 7, T. 15 N., R. 22 E.

A11—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine vesicular pores; 20 percent gravel and 15 percent cobbles; neutral; clear smooth boundary.

A12—3 to 5 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium roots and many fine and very fine roots; many fine and very fine tubular pores; 20 percent gravel and 15 percent cobbles; neutral; abrupt smooth boundary.

B21t—5 to 7 inches; dark grayish brown (10YR 4/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few medium roots and common fine and very fine roots; many fine and very fine tubular pores; continuous thin and moderately thick clay films on peds; 15 percent gravel and 5 percent cobbles; neutral; abrupt smooth boundary.

B22t—7 to 11 inches; brown (10YR 4/3) gravelly clay, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; hard, very firm, very sticky and very plastic; few medium, fine, and very

fine roots; many fine tubular pores; continuous moderately thick pressure faces; 15 percent gravel and 5 percent cobbles; neutral; clear smooth boundary.

B23t—11 to 18 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 3/4) moist; strong coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few medium and fine roots; few medium and common fine tubular pores; continuous moderately thick pressure faces; 10 percent gravel and 2 percent cobbles; neutral; irregular wavy boundary.

R—18 inches; fractured andesite.

The mollic epipedon is 7 to 20 inches thick and includes all or part of the argillic horizon. Thickness of the solum and depth to bedrock are 12 to 20 inches. Reaction is slightly acid to neutral throughout.

The B2t horizon is dominantly clay or gravelly clay with thin layers of heavy clay loam. It has 40 to 60 percent clay and less than 30 percent rock fragments.

Devils Series

The Devils series consists of moderately deep, well drained, slowly permeable soils on plateaus. These soils formed in residuum derived from basic igneous rocks. Slopes are 4 to 30 percent.

Typical pedon of Devils very cobbly loam, 4 to 15 percent slopes, in an area of Glean-Devils association, 2,900 feet south and 1,200 feet west of the northeast corner of sec. 13, T. 8 N., R. 23 E.

A11—0 to 1 inch; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine roots; many fine and very fine vesicular pores; 30 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

A12—1 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many fine and very fine roots; many fine and very fine vesicular pores; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

A13—3 to 7 inches; brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine interstitial pores; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

B1t—7 to 9 inches; brown (10YR 4/3) cobbly loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium and common fine roots; many fine and very fine tubular pores; 20 percent pebbles, 10 percent cobbles, and 5 percent stones; few thin clay films lining pores; neutral; clear smooth boundary.

B21t—9 to 18 inches; yellowish brown (7.5YR 5/4) very gravelly clay loam, dark yellowish brown (7.5YR 4/4) moist; strong medium subangular blocky structure; very hard, firm, sticky and plastic; few medium and common fine roots; common very fine tubular pores; 25 percent pebbles, 10 percent cobbles, and 5 percent stones; many moderately thick clay films lining pores and on peds; neutral; clear wavy boundary.

B22t—18 to 22 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; very hard, firm, sticky and plastic; few medium and fine roots; few fine tubular pores; 30 percent pebbles, 10 percent cobbles, and 5 percent stones; many moderately thick clay films lining pores and on peds; neutral; abrupt wavy boundary.

Cr—22 to 30 inches; soft andesite with some clay coatings and root mats in fractures; gradual wavy boundary.

R—30 inches; hard andesite.

The mollic epipedon is 7 to 12 inches thick. Depth to the paralithic contact is 20 to 36 inches. Hard bedrock is at a depth of 22 to 40 inches. Reaction is slightly acid or neutral.

The Bt horizon averages very gravelly clay loam and 27 to 35 percent clay. The horizon has 35 to 60 percent rock fragments, mostly pebbles.

Devils Variant

The Devils Variant consists of moderately deep, well drained, moderately slowly permeable soils in concave areas of plateaus. These soils formed in residuum derived from granitic bedrock. Slopes are 4 to 15 percent.

Typical pedon of Devils Variant gravelly loam, in an area of Ravenell Variant-Devils Variant association, about 1,900 feet west of benchmark 8458, T. 9 N., R. 26 E.

A11—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak coarse granular structure; soft, very friable, nonsticky and nonplastic; few medium roots and many fine and very fine roots; few fine and many very fine interstitial pores; 20 percent fine pebbles; slightly acid; clear smooth boundary.

A12—4 to 10 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak coarse

granular structure; slightly hard, very friable, nonsticky and nonplastic; few medium roots and many fine and very fine roots; many fine and very fine tubular pores; 20 percent fine pebbles and 5 percent cobbles; neutral; clear smooth boundary.

B1t—10 to 16 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; hard, friable, sticky and slightly plastic; common fine and very fine roots; common fine and very fine tubular pores; common thin clay bridges; 25 percent pebbles; neutral; clear smooth boundary.

B2t—16 to 24 inches; brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 4/4) moist; weak medium and coarse subangular blocky structure; hard, friable, sticky and plastic; common fine and very fine roots; few fine and very fine tubular pores; continuous thin and moderately thick clay films on peds and lining pores; 20 percent fine pebbles; neutral; clear smooth boundary.

B3t—24 to 30 inches; brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 4/4) moist; weak fine and medium subangular blocky structure; hard, friable, sticky and slightly plastic; few fine and very fine roots; few fine and very fine tubular pores; continuous thin and moderately thick clay films on peds and lining pores; 30 percent fine pebbles; neutral; clear smooth boundary.

Cr—30 to 40 inches; soft, weathered granite with clay coatings and some roots in fractures.

Thickness of the solum and depth to the paralithic contact are 20 to 40 inches. The profile is slightly acid or neutral. The Bt horizon is gravelly sandy clay loam or gravelly clay loam that is 25 to 35 percent clay.

Dia Series

The Dia series consists of very deep, somewhat poorly drained, moderately permeable soils on alluvial fans, lake plains, flood plains, and low stream terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Dia loam, about 1,300 feet north and 1,700 feet east of the southwest corner of sec. 15, T. 14 N., R. 25 E.

Ap—0 to 8 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; very hard, friable, sticky and plastic; many fine and very fine roots; many fine and very fine tubular pores; neutral; clear smooth boundary.

A12—8 to 20 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; common fine distinct dark yellowish brown (10YR 3/4) iron mottles; weak medium subangular blocky structure; hard, very friable, sticky and plastic; common fine and very fine roots; many fine and very fine tubular pores; neutral; abrupt wavy boundary.

IIC1—20 to 24 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; common fine distinct yellowish brown (10YR 5/4) iron mottles and common fine faint dark yellowish brown (10YR 4/4) iron mottles; massive; soft, loose, nonsticky and nonplastic; common fine and very fine roots; many fine and very fine tubular and interstitial pores; neutral; clear wavy boundary.

IIC2—24 to 60 inches; light grayish brown (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine interstitial pores; neutral.

The mollic epipedon is 7 to 20 inches thick. Depth to the contrasting sandy substratum is 20 to 40 inches. The upper part of the control section is 18 to 25 percent clay and less than 25 percent rock fragments. Reaction is neutral to mildly alkaline. Reaction of the sandy lower part of the control section is neutral to moderately alkaline.

Dithod Series

The Dithod series consists of very deep, somewhat poorly drained, moderately slowly permeable soils on low stream terraces, alluvial flats, and flood plains. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Dithod loam, about 1,300 feet north and 2,500 feet east of the southwest corner of sec. 15, T. 14 N., R. 25 E.

Ap—0 to 11 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; very hard, friable, slightly sticky and plastic; many fine and very fine roots; many fine and very fine tubular pores; neutral; clear smooth boundary.

C1—11 to 20 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; common fine prominent dark brown (7.5YR 3/4) iron mottles; massive; very hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots; few medium and many fine and very fine tubular pores; neutral; abrupt smooth boundary.

IIC2—20 to 32 inches; grayish brown (10YR 5/2) sandy clay loam, very dark grayish brown (10YR 3/2) moist; common fine distinct dark brown (10YR 4/3) iron mottles; massive; hard, friable, sticky and slightly plastic; few very fine roots; many fine and very fine tubular and interstitial pores; neutral; clear wavy boundary.

IIIC3—32 to 42 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist;

common fine prominent strong brown (7.5YR 4/6) iron mottles; massive; very hard, very friable, slightly sticky and slightly plastic; few very fine roots; common fine and very fine tubular pores; neutral; abrupt smooth boundary.

IVC4—42 to 60 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 5/3) moist; common medium faint yellowish brown (10YR 5/4) iron mottles; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine interstitial pores; neutral.

Thickness of the mollic epipedon is 10 to 18 inches. The control section is stratified clay loam to loamy fine sand that averages 18 to 25 percent clay. Reaction of the C horizon is neutral to moderately alkaline.

Drit Series

The Drit series consists of very deep, well drained, moderately rapidly permeable soils on mountainsides. These soils formed in colluvium derived from granitic rocks. Slopes are 15 to 75 percent.

Typical pedon of Drit coarse sandy loam, 30 to 50 percent slopes, in an area of Trid-Drit association, 600 feet north and 2,700 feet east of the southwest corner of sec. 12, T. 14 N., R. 22 E.

A11—0 to 4 inches; grayish brown (10YR 5/2) coarse sandy loam, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; 10 percent fine pebbles; slightly acid; abrupt smooth boundary.

A12—4 to 9 inches; dark grayish brown (10YR 4/2) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine interstitial pores; 10 percent fine pebbles; neutral; clear smooth boundary.

A13—9 to 25 inches; brown (10YR 5/3) gravelly coarse sandy loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few coarse roots and common medium, fine, and very fine roots; few fine and very fine interstitial pores; 25 percent pebbles; neutral; clear smooth boundary.

B2—25 to 35 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

C1—35 to 60 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 40 percent pebbles and 15 percent cobbles; neutral.

Thickness of the mollic epipedon is 20 to 38 inches. Reaction is slightly acid or neutral. The control section is coarse sandy loam, sandy loam, or fine sandy loam that is 40 to 75 percent rock fragments. It averages 8 to 18 percent clay.

Duco Series

The Duco series consists of shallow, well drained, moderately slowly permeable soils on convex ridges and back slopes of mountains. These soils formed in residuum derived from andesite. Slopes are 15 to 50 percent.

Typical pedon of Duco extremely stony loam, in an area of Flex-Duco association, 800 feet south and 1,300 feet east of the northwest corner of sec. 26, T. 19 N., R. 24 E.

A11—0 to 2 inches; grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; common fine interstitial and vesicular pores; 25 percent pebbles, 5 percent cobbles, and 30 percent stones; neutral; abrupt smooth boundary.

A12—2 to 4 inches; grayish brown (10YR 5/2) very stony loam, dark brown (10YR 3/3) moist; moderate thick and medium platy structure; slightly hard, friable, nonsticky and nonplastic; common medium roots and many fine and very fine roots; many fine and very fine vesicular pores; 20 percent pebbles, 5 percent cobbles, and 10 percent stones; neutral; clear smooth boundary.

B1t—4 to 7 inches; brown (10YR 4/3) very cobbly light sandy clay loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium roots and many fine and very fine roots; few fine tubular pores; few thin clay films on peds; 30 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

B21t—7 to 11 inches; brown (10YR 5/3) very cobbly sandy clay loam, dark brown (10YR 4/3) moist; moderate coarse and medium subangular blocky structure; hard, firm, sticky and plastic; common medium roots and many fine and very fine roots; common fine and very fine tubular pores; 30 percent pebbles, 15 percent cobbles, and 5 percent stones; common thin clay films on peds and lining pores; neutral; clear wavy boundary.

B22t—11 to 19 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 4/3) moist;

moderate coarse and medium angular blocky structure; hard, firm, sticky and plastic; few medium and fine roots; few fine and very fine tubular pores; 35 percent pebbles, 15 percent cobbles, and 10 percent stones; common thin clay films on peds and lining pores; neutral; clear wavy boundary.

R—19 inches; andesite.

Thickness of the mollic epipedon is 7 to 20 inches. Thickness of the solum and depth to bedrock are 10 to 20 inches. Reaction is slightly acid to mildly alkaline.

The Bt horizon has 35 to 75 percent rock fragments and 27 to 35 percent clay.

East Fork Series

The East Fork series consists of very deep, somewhat poorly drained, moderately slowly permeable soils on flood plains, alluvial flats, and low stream terraces. These soils formed in alluvium derived from basalt, andesite, tuff, and granitic rocks. Slopes are 0 to 2 percent.

Typical pedon of East Fork clay loam, 1,700 feet east and 1,800 feet north of the southwest corner of sec. 23, T. 13 N., R. 25 E.

Ap—0 to 7 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; hard, firm, sticky and plastic; many fine and very fine roots; many very fine tubular pores; neutral; clear smooth boundary.

A11—7 to 14 inches; grayish brown (10YR 5/2) clay loam, very dark gray (10YR 3/1) moist; many medium distinct brown (10YR 4/3) iron mottles; moderate medium and fine subangular blocky structure; hard, very firm, sticky and plastic; common medium roots and many fine and very fine roots; many very fine tubular pores; neutral; gradual smooth boundary.

A12—14 to 18 inches; gray (10YR 5/1) light silty clay, very dark gray (10YR 3/1) moist; moderate medium and fine angular blocky structure; very hard, very firm, very sticky and very plastic; common medium roots and many fine and very fine roots; many very fine tubular pores; neutral; abrupt smooth boundary.

IIC1ca—18 to 31 inches; light brownish gray (10YR 6/2) heavy loam, dark grayish brown (10YR 4/2) moist; massive; few medium roots and many fine and very fine roots; many very fine tubular pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.

IIIA1b—31 to 36 inches; gray (10YR 5/1) silty clay, very dark gray (10YR 3/1) moist; many medium distinct yellowish brown (10YR 5/6) iron mottles; moderate medium and fine angular blocky structure; very hard, very firm, very sticky and very plastic; few medium roots and common fine and very fine roots; many very fine tubular pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.

IVC2—36 to 59 inches; light brownish gray (10YR 6/2) heavy loam, dark grayish brown (10YR 4/2) moist; many medium distinct light olive brown (2.5Y 5/4) iron mottles; massive; slightly hard, friable, sticky and plastic; few fine and very fine roots; few very fine tubular pores; slightly effervescent in spots; moderately alkaline; abrupt smooth boundary.

VC3—59 to 68 inches; uncoated sand; common coarse distinct yellowish brown (10YR 5/6) iron mottles; loose, nonsticky and nonplastic; many very fine interstitial pores; moderately alkaline.

The thickness of the mollic epipedon is 10 to 20 inches. The control section is stratified sand to clay that averages 25 to 35 percent clay and less than 5 percent rock fragments. Reaction of the control section is neutral to moderately alkaline.

Fallon Series

The Fallon series consists of very deep, somewhat poorly drained, moderately rapidly permeable soils on low stream terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Fallon fine sandy loam, 1,350 feet north and 2,600 feet east of the southwest corner of sec. 2, T. 13 N., R. 25 E.

A1—0 to 1 inch; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium granular structure; slightly hard, very friable, nonsticky and nonplastic; few fine and many very fine roots; common fine and very fine tubular and interstitial pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C1—1 to 10 inches; pale brown (10YR 6/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, nonsticky and slightly plastic; many fine and very fine roots; many very fine interstitial pores and common fine tubular pores; slightly effervescent in spots; moderately alkaline; abrupt smooth boundary.

C2—10 to 19 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; many medium distinct dark yellowish brown (10YR 3/4) iron mottles; massive; hard, friable, nonsticky and slightly plastic; many fine and very fine roots; many very fine interstitial pores and common fine tubular pores; neutral; abrupt wavy boundary.

IIC3—19 to 25 inches; light brownish gray (10YR 6/2) sand, grayish brown (10YR 5/2) moist; common medium faint brown (10YR 5/3) iron mottles; single grain; loose, nonsticky and nonplastic; few fine and

common very fine roots; many fine and very fine interstitial pores; slightly effervescent in spots; neutral; abrupt smooth boundary.

IIC4—25 to 32 inches; light gray (10YR 7/2) very fine sandy loam, variegated gray and grayish brown (10YR 5/l and 5/2) moist; few fine and medium prominent dark yellowish brown (10YR 4/6) iron mottles; massive; hard, friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; neutral; abrupt smooth boundary.

IIIC5—32 to 42 inches; light gray (2.5Y 6/1) fine sand, very dark gray (2.5Y 3/1) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; neutral; abrupt smooth boundary.

IIIC6—42 to 60 inches; light gray (2.5Y 6/1) silt loam, very dark gray (2.5Y 3/1) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; neutral.

The control section is stratified and averages sandy loam or fine sandy loam that is 5 to 15 percent clay. Reaction is neutral to strongly akaline.

Fernley Series

The Fernley series consists of very deep, poorly drained, very rapidly permeable soils on flood plains, low stream terraces, and deltaic fans. These soils formed in sandy alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Fernley loamy sand, 1,000 feet south and 1,750 feet east of the northwest corner of sec. 14, T. 13 N., R. 25 E.

A1—0 to 8 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few fine and common very fine roots; many fine and very fine interstitial pores; slightly effervescent; moderately alkaline; clear smooth boundary.

C1—8 to 15 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few fine and common very fine roots; many fine and very fine interstitial pores; slightly effervescent; moderately alkaline; gradual smooth boundary.

C2—15 to 30 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; many coarse faint brown (10YR 4/3) iron mottles; single grain; loose, nonsticky and nonplastic; few fine and common very fine roots; many fine and very fine pores; 5 percent pebbles; mildly alkaline; gradual smooth boundary.

C3—30 to 60 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; many coarse distinct dark yellowish brown (10YR 4/4) iron mottles; single grain; loose, nonsticky and nonplastic; few very fine roots; many fine and very fine pores; 10 percent pebbles; neutral.

The control section consists of fine to coarse sand and as much as 15 percent pebbles. Reaction is neutral to moderately alkaline.

Flex Series

The Flex series consists of shallow and very shallow, well drained, moderately permeable soils on mountain ridges and side slopes. These soils formed in residuum derived from highly weathered metavolcanic and andesitic rock. Slopes are 15 to 50 percent.

Typical pedon of Flex gravelly loam, in an area of Flex-Duco association, about 50 feet east and 2,100 feet south of the northwest corner of sec. 13, T. 10 N., R. 26 E.

A11—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; few fine and very fine roots; common fine interstitial pores; 25 percent pebbles and 5 percent cobbles; neutral; abrupt smooth boundary.

A12—2 to 4 inches; grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots; common fine vesicular pores; 25 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

B2t—4 to 7 inches; strong brown (7.5YR 5/6) very gravelly sandy clay loam, yellowish brown (10YR 5/6) moist; weak fine subangular blocky structure; hard, friable, sticky and plastic; few medium roots and many fine and very fine roots; few fine tubular pores; clay bridges between mineral grains and few thin clay films on ped faces; 35 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

B3t—7 to 12 inches; reddish yellow (7.5YR 6/6) very gravelly sandy clay loam, strong brown (7.5YR 5/6) moist; massive; slightly hard, friable, sticky and slightly plastic; few medium and fine roots; common fine interstitial pores; clay bridges between mineral grains; 40 percent pebbles and 5 percent cobbles; neutral; gradual wavy boundary.

Cr—12 to 30 inches; highly weathered metavolcanic and tuffaceous bedrock.

Thickness of the solum and depth to the paralithic contact are 6 to 12 inches.

The Bt horizon is very gravelly sandy loam or very gravelly sandy clay loam that is 18 to 27 percent clay and 35 to 50 percent rock fragments, mostly pebbles. Reaction is slightly acid or neutral.

Fulstone Series

The Fulstone series consists of shallow, well drained, slowly permeable soils on very old alluvial fans. These soils formed in material derived from igneous and metamorphic rocks. Slopes are 2 to 30 percent.

Typical pedon of Fulstone cobbly loam, 2 to 8 percent slopes, about 800 feet north of the southeast corner of sec. 33, T. 10 N., R. 24 E.

A11—0 to 2 inches; light gray (10YR 6/1) cobbly loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few medium and many fine and very fine interstitial and vesicular pores; neutral; abrupt smooth boundary.

A12—2 to 5 inches; grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and many very fine roots; many very fine interstitial and vesicular pores; moderately alkaline; abrupt wavy boundary.

B2t—5 to 13 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; strong medium prismatic structure; very hard, firm, very sticky and very plastic; few fine and very fine roots; common fine and very fine tubular pores; continuous pressure faces; neutral; abrupt wavy boundary.

B3t—13 to 18 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and very plastic; few fine and very fine roots; few fine and very fine tubular pores; common moderately thick clay films lining pores; neutral; abrupt wavy boundary.

C1sicam—18 to 22 inches; light yellowish brown (10YR 6/4) indurated duripan with grayish brown (10YR 5/2) laminae, brown (10YR 4/3) moist; moderate very thick platy structure; extremely hard, extremely firm; root mats on surface; strongly effervescent; moderately alkaline, abrupt smooth boundary.

C2sicam—22 to 30 inches; light yellowish brown (10YR 6/4) alternating weakly and strongly silica- and lime-cemented layers, brown (10YR 4/3) moist; massive; very hard, very firm; strongly effervescent; strongly alkaline; clear wavy boundary.

C3sica—30 to 48 inches; light gray (10YR 7/2) very cobbly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few thin weakly silica- and lime-cemented horizontal layers and masses; 30 percent pebbles and 25 percent cobbles; violently effervescent; strongly alkaline.

Thickness of the solum and depth to the duripan are 14 to 20 inches.

The Bt horizon has 45 to 60 percent clay and averages less than 5 percent rock fragments.

Fulstone Variant

The Fulstone Variant consists of moderately deep, well drained, slowly permeable soils on plateaus. These soils formed in residuum derived from basic igneous rock. Slopes are 0 to 8 percent.

Typical pedon of Fulstone Variant extremely cobbly loam, in an area of Fulstone Variant-Devils-Glean association, 4,690 feet east-southeast of benchmark 8108, T. 8 N., R. 26 E.

A11—0 to 1 inch; light brownish gray (10YR 6/2) extremely cobbly loam, dark brown (10YR 3/3) and dark grayish brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many fine and very fine vesicular pores; 20 percent gravel and 50 percent cobbles; neutral; abrupt smooth boundary.

A12—1 to 5 inches; grayish brown (10YR 5/2) extremely cobbly loam, brown (10YR 3/3) moist; moderate fine and very fine granular structure; soft, very friable, slightly sticky and slightly plastic; few medium, common fine, and many very fine roots; common fine and many very fine pores; 15 percent gravel and 50 percent cobbles; neutral; clear wavy boundary.

AB—5 to 9 inches; grayish brown (10YR 5/2) cobbly clay loam, dark brown (10YR 3/3) moist; strong fine subangular blocky structure; hard, firm, sticky and plastic; few medium, common fine, and many very fine roots; common fine and many very fine tubular pores; 15 percent gravel and 15 percent cobbles; neutral; abrupt wavy boundary.

B21t—9 to 11 inches; brown (10YR 5/3) cobbly clay, dark brown (10YR 4/3) moist; strong fine angular blocky structure; hard, firm, very sticky and very plastic; few medium and fine roots and many very fine roots; many fine and very fine tubular pores; 15 percent gravel and 15 percent cobbles; neutral; abrupt wavy boundary.

B22t—11 to 15 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 4/3) moist; strong medium and fine prismatic structure; very hard, very firm, very sticky and very plastic; few medium and fine roots and common very fine roots; many fine and very fine pores; common thin, moderately thick, and thick clay films on ped faces; 20 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

B23t—15 to 20 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium fine angular blocky structure; very hard, very firm, very sticky and very plastic; few medium and fine roots and many very fine roots; many fine and very fine pores; many thin, moderately thick, and thick clay films on ped faces; 10 percent gravel; neutral; clear wavy boundary.

B3t—20 to 25 inches; very pale brown (10YR 7/4) clay loam, yellowish brown (10YR 5/4) moist; strong medium and fine angular blocky structure; hard, firm, sticky and plastic; few medium and fine roots and common very fine roots; many fine and very fine tubular pores; many thin and moderately thick clay films on ped faces and lining pores; neutral; clear wavy boundary.

C1sim—25 to 32 inches; very pale brown (10YR 7/4) duripan with strongly cemented plates in a weakly cemented matrix, yellowish brown (10YR 4/4) moist; massive; very hard, very firm, brittle; neutral; abrupt wavy boundary.

C2sicam—32 to 46 inches; strongly silica- and lime-cemented duripan; discontinuous thin silica laminae; massive; strongly effervescent; moderately alkaline.

The mollic epipedon is 7 to 10 inches thick. Thickness of the solum and depth to the duripan are 20 to 30 inches. Reaction of the solum is slightly acid or neutral. The Bt horizon averages clay, clay loam, or gravelly clay that is 35 to 50 percent clay.

Gamgee Series

The Gamgee series consists of very deep, well drained, slowly permeable soils on old alluvial fans and terraces. These soils formed in alluvium derived from volcanic rocks. Slopes are 2 to 15 percent.

Typical pedon of Gamgee gravelly sand, 2 to 15 percent slopes, about 7,000 feet west-northwest of benchmark 4741, T. 16 N., R. 27 E.

A11—0 to 3 inches; light brownish gray (10YR 6/2) gravelly sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common fine and very fine roots; many very fine interstitial pores; 20 percent gravel, 5 percent cobbles, and 2 percent stones; neutral; abrupt smooth boundary.

A12—3 to 4 inches; light gray (10YR 7/1) loam, gray (10YR 5/1) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common fine and many very fine roots; many fine and very fine vesicular pores; mildly alkaline; clear smooth boundary.

B21t—4 to 11 inches; dark yellowish brown (10YR 4/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine prismatic structure parting to moderate fine subangular and angular blocky; very hard, firm, very sticky and very plastic; few fine and many very fine roots; few fine and many very fine tubular pores; continuous thin and moderately thick clay films on ped faces and lining pores; strongly alkaline; clear wavy boundary.

B22t—11 to 17 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak coarse prismatic structure parting to moderate medium and coarse subangular blocky; very hard, firm, sticky and plastic; few fine and very fine roots; common very fine tubular pores; continuous thin and very thin clay films on ped faces and lining pores; slightly effervescent in spots; strongly alkaline; gradual wavy boundary.

B3tca—17 to 23 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; many very thin clay bridges; strongly effervescent in spots; strongly alkaline; gradual wavy boundary.

C1ca—23 to 60 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline.

Thickness of the solum is 20 to 30 inches.

The Bt horizon averages 25 to 35 percent clay, but it has 35 to 45 percent clay in some parts. Rock fragment content is less than 15 percent. The sodium absorption ratio is less than 13 in the upper part of the Bt and is 20 to 40 in the lower part. Reaction is moderately alkaline or strongly alkaline.

Glean Series

The Glean series consists of deep and very deep, well drained, moderately rapidly permeable soils on side slopes. These soils formed in colluvium derived from mixed rock sources. Slopes are 8 to 50 percent.

Typical pedon of Glean gravelly loam, 8 to 15 percent slopes, in an area of Glean-Devils association, 2,650 feet east by northeast of VABM 9544, T. 8 N., R. 26 E.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many fine and very fine interstitial pores; 30 percent pebbles, less than 5 percent cobbles and stones, and boulders 4 to 8 feet in diameter and 25 to 200 feet apart; slightly acid; abrupt smooth boundary.

A12—2 to 8 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 5/3) moist; moderate medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common medium roots and many fine and very fine roots; few fine and many very fine tubular pores; 30 percent pebbles and less than 5 percent cobbles and stones; slightly acid; gradual smooth boundary.

A13—8 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium and

fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common medium roots and many fine and very fine roots; few fine and many very fine tubular pores; 30 percent pebbles and less than 5 percent cobbles and stones; neutral; gradual smooth boundary.

AC—14 to 24 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common medium and fine roots and many very fine roots; common fine and many very fine tubular pores; 30 percent pebbles, 20 percent cobbles, and 5 percent stones; slightly acid; gradual smooth boundary.

C1—24 to 60 inches; pale brown (10YR 6/3) very cobbly loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few medium and fine roots and many very fine roots; few fine and many very fine tubular pores; 25 percent pebbles, 15 percent cobbles, and 5 percent stones; slightly acid.

The mollic epipedon is 22 to 39 inches thick. Depth to bedrock is 40 to 70 inches. The control section has 8 to 18 percent clay and 35 to 50 percent rock fragments. Reaction is slightly acid or neutral.

Glean Variant

The Glean Variant consists of moderately deep, well drained, very rapidly permeable soils on mountainsides. These soils formed in residuum and colluvium derived from granitic bedrock. Slopes are 50 to 75 percent.

Typical pedon of Glean Variant gravelly loamy sand, in an area of Glean Variant-Hartig Variant-Rubble land association, about 550 feet west and 1,400 feet south of the northeast corner of sec. 34, T. 8 N., R. 24 E.

A11—0 to 4 inches; dark grayish brown (10YR 4/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; massive; loose, nonsticky and nonplastic; many very fine roots; many very fine and fine interstitial pores; 25 percent fine pebbles; neutral; abrupt wavy boundary.

A12—4 to 11 inches; brown (10YR 5/3) gravelly sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few fine and many very fine roots; many fine and very fine interstitial pores; 30 percent fine pebbles; neutral; abrupt wavy boundary.

C1—11 to 31 inches; brown (10YR 5/3) gravelly sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine roots and common fine, medium, and coarse roots; many very fine interstitial pores; 30 percent fine pebbles; neutral; abrupt wavy boundary.

Cr—31 to 36 inches; soft granite; some roots in fractures.

The mollic epipedon is 10 to 16 inches thick. Depth to a paralithic contact is 20 to 40 inches, and depth to unweathered bedrock is 40 to 80 inches. The particle size control section is gravelly sand or gravelly loamy sand.

Haar Series

The Haar series consists of very shallow, well drained, moderately permeable soils on the sides of dissected Tertiary lakebeds. These soils formed in residuum derived from soft sedimentary bedrock. Slopes are 15 to 50 percent.

Typical pedon of Haar gravelly loam, 30 to 50 percent slopes, in an area of Ravenell-Haar-Rock outcrop association, 450 feet east of the southwest corner of sec. 1, T. 7 N., R. 27 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; weak medium and fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent pebbles; mildly alkaline; abrupt smooth boundary.

C1—2 to 6 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few coarse roots common medium and fine roots, and many very fine roots; many fine and very fine interstitial pores; 80 percent gravel-sized fragments of soft siltstone; moderately alkaline; clear wavy boundary.

C2r—6 inches; fractured, stratified sandstone, mudstone, and siltstone; root mats in fractures.

Depth to the paralithic contact is 4 to 10 inches. The profile is 50 to 90 percent soft rock fragments, most of which slake in water. Clay content is 10 to 18 percent. Reaction is neutral to moderately alkaline.

Hartig Series

The Hartig series consists of deep and very deep, well drained, moderately permeable soils on mountainsides. These soils formed in colluvium and residuum derived from andesite and rhyolite. Slopes are 30 to 50 percent.

Typical pedon of Hartig very gravelly sandy loam, in an area of Glean-Ticino-Hartig association, 1,150 feet west and 2,300 feet north of the southeast corner of sec. 26, T. 15 N., R. 22 E.

A11—0 to 4 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few medium and coarse roots and many fine and very fine roots; many very fine interstitial pores; 45 percent pebbles, 5 percent cobbles, and 1 percent stones; neutral; clear smooth boundary.

A12—4 to 14 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; few medium roots and many fine and very fine roots; many very fine interstitial pores; 40 percent pebbles and 10 percent cobbles; neutral; clear smooth boundary.

B2—14 to 24 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium and coarse roots, common fine roots, and many very fine roots; many fine interstitial pores and few fine tubular pores; 45 percent pebbles and 10 percent cobbles; neutral; gradual wavy boundary.

C1—24 to 32 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; many very fine interstitial pores and few fine tubular pores; 45 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral; gradual wavy boundary.

C2—32 to 60 inches; light gray (10YR 7/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; many very fine interstitial pores; 45 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral.

The mollic epipedon is 7 to 20 inches thick. Depth to bedrock is 40 to 70 inches. The control section averages very gravelly loam or very gravelly sandy loam that is 8 to 18 percent clay and 35 to 60 percent rock fragments, mostly pebbles. Reaction is slightly acid or neutral.

Hartig Variant

The Hartig Variant consists of shallow, well drained, moderately rapidly permeable soils on mountainsides. These soils formed in residuum derived from granitic bedrock. Slopes are 30 to 50 percent.

Typical pedon of Hartig Variant extremely gravelly coarse sand, in an area of Glean Variant-Hartig Variant-Rubble land association, 400 feet east and 1,400 feet south of the northwest corner of sec. 22, T. 8 N., R. 24 E.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) extremely gravelly coarse sand, black (10YR 2/1) moist; single grain; loose, nonsticky and nonplastic; common fine and very fine roots; many fine and very fine interstitial pores; 50 percent pebbles, 20 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

A12—2 to 9 inches; dark grayish brown (10YR 4/2) very gravelly sandy loam, very dark brown (10YR 2/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many coarse, medium, fine, and very fine roots; many very fine interstitial pores; 40 percent pebbles, 10 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

A13—9 to 16 inches; dark grayish brown (10YR 4/2) extremely gravelly sandy loam, very dark brown (10YR 2/2) moist; massive; soft, very friable, nonsticky and nonplastic; common coarse and medium roots and many fine and very fine roots; many very fine interstitial pores; 50 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; abrupt wavy boundary.

R—16 inches; fractured granite; roots extend into fractures.

The mollic epipedon is 9 to 16 inches thick. Depth to bedrock is 10 to 20 inches. The profile has 50 to 80 percent rock fragments, mainly pebbles. Reaction is slightly acid or neutral. A C horizon is present in some pedons.

Hawsley Series

The Hawsley series consists of very deep, somewhat excessively drained, very rapidly permeable soils on alluvial fans and terraces. These soils formed in alluvium and water-reworked eolian deposits derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Hawsley sand, 2 to 8 percent slopes, 1,800 feet north and 1,600 feet east of projected corner of sec. 17, T. 16 N., R. 27 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; neutral; abrupt smooth boundary.

C1—2 to 8 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and many very fine roots; many very fine interstitial pores; neutral; clear smooth boundary.

C2—8 to 24 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few medium, fine, and very fine roots; many very fine interstitial pores; mildly alkaline; gradual wavy boundary.

C3ca—24 to 38 inches; light brownish gray (10YR 6/2) sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline; gradual wavy boundary.

C5ca—38 to 60 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist;

massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; slightly effervescent; strongly alkaline.

The control section is strata of fine sand, sand, and coarse sand. Reaction is mildly alkaline to strongly alkaline.

Haybourne Series

The Haybourne series consists of very deep, well drained, moderately rapidly permeable soils on the lower end of alluvial fans. These soils formed in mixed alluvium derived mainly from granitic rocks. Slopes are 0 to 2 percent.

Typical pedon of Haybourne loam, about 200 feet south and 2,300 feet east of the northwest corner of sec. 10, T. 11 N., R. 23 E.

A11—0 to 5 inches; brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common medium roots and many fine and very fine roots; common very fine tubular pores; neutral; clear smooth boundary.

A12—5 to 11 inches; brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; weak medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium roots, few fine roots, and many very fine roots; common very fine interstitial and tubular pores and few coarse vesicular pores; neutral; clear smooth boundary.

B2—11 to 20 inches; yellowish brown (10YR 5/4) heavy sandy loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; few medium and fine roots and common very fine roots; few fine tubular pores; few thin and very thin clay bridges; neutral; clear wavy boundary.

B3—20 to 32 inches; yellowish brown (10YR 5/4) sandy loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; hard, friable, nonsticky and nonplastic; few very fine roots; few fine and very fine interstitial pores; few very thin clay bridges; neutral; gradual wavy boundary.

C1—32 to 58 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; few fine and many very fine interstitial pores; neutral; clear wavy boundary.

C2—58 to 60 inches; yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; soft, friable, nonsticky and nonplastic; few fine and many very fine interstitial pores; neutral.

The control section averages 8 to 18 percent clay and contains less than 15 percent rock fragments. Reaction is neutral to moderately alkaline.

Hocar Series

The Hocar series consists of shallow, well drained, moderately permeable soils on low mountains. These soils formed in residuum and colluvium derived from metasedimentary rocks. Slopes are 15 to 30 percent.

Typical pedon of Hocar gravelly loam, in an area of Hocar-Rock outcrop complex, 15 to 30 percent slopes, eroded; about 300 feet east and 1,822 feet south of the northwest corner of sec. 25, T. 16 N., R. 20 E.

O1—1 inch to 0; juniper and pine litter.

A1—0 to 9 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine interstitial pores; 25 percent pebbles; strongly effervescent; moderately alkaline; clear smooth boundary.

C1—9 to 15 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common coarse and medium roots and many fine and very fine roots; many very fine interstitial pores; 35 percent pebbles; coatings of lime on underside of pebbles; strongly effervescent; moderately alkaline; clear smooth boundary.

C2—15 to 19 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 4/3) moist; massive; soft, slightly sticky and slightly plastic; many coarse, medium, fine, and very fine roots; many very fine interstitial pores; 60 percent lime-coated pebbles; strongly effervescent; moderately alkaline; clear irregular boundary.

Cr—19 inches; fractured, soft metasedimentary bedrock; coatings of lime in fractures.

Depth to the paralithic contact is 7 to 20 inches. The control section has 10 to 18 percent clay and 40 to 85 percent rock fragments.

Holbrook Series

The Holbrook series consists of very deep, well drained, moderately rapidly permeable soils on recent alluvial fans. These soils formed in mixed alluvium. Slopes are 2 to 15 percent.

Typical pedon of Holbrook very stony sandy loam, 4 to 15 percent slopes, about 1,350 feet south and 1,000 feet east of the northwest corner of sec. 4, T. 11 N., R. 23 E.

A1—0 to 10 inches; grayish brown (10YR 5/2) very stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine subangular

blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine interstitial pores; 20 percent pebbles, 5 percent cobbles, and 10 percent stones; neutral; clear wavy boundary.

C1—10 to 15 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few coarse, medium, and fine roots and common very fine roots; few fine and very fine tubular pores and many very fine interstitial pores; 30 percent pebbles and 10 percent cobbles; neutral; gradual wavy boundary.

C2—15 to 31 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium and fine roots and common very fine roots; few fine and very fine tubular pores and many very fine interstitial pores; 30 percent pebbles and 10 percent cobbles; neutral; gradual wavy boundary.

C3—31 to 43 inches; light brownish gray (2.5Y 6/2) very gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and common very fine roots; many fine and very fine interstitial pores; 40 percent pebbles and 10 percent cobbles; neutral; gradual wavy boundary.

C4ca—43 to 60 inches; light brownish gray (2.5Y 6/2) very gravelly loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and very fine roots; many fine and very fine interstitial pores; 40 percent pebbles and 15 percent cobbles; moderately alkaline; strongly effervescent.

The mollic epipedon is 10 to 20 inches thick. The control section is stratified but averages 5 to 10 percent clay and 35 to 50 percent rock fragments. Reaction is slightly acid to moderately alkaline.

Holbrook Variant

The Holbrook Variant consists of moderately deep, well drained, moderately rapidly permeable soils on low hills and mountains. These soils formed in residuum derived from andesite and basalt. Slopes are 30 to 75 percent.

Typical pedon of Holbrook Variant very stony fine sandy loam, in an area of Holbrook Variant-Rock outcrop complex, 30 to 75 percent slopes, 200 feet south and 1,800 feet east of the northwest corner of sec. 5, T. 15 N., R. 21 E.

A11—0 to 3 inches; light brownish gray (10YR 6/2) very stony fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; many fine and very fine interstitial pores; 10 percent pebbles, 20 percent cobbles, and 20 percent stones; neutral; clear smooth boundary.

A12—3 to 9 inches; pale brown (10YR 6/3) very cobbly fine sandy loam, dark brown (10YR 3/3) moist; weak medium and fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common fine and many very fine roots; many very fine interstitial pores and few fine tubular pores; 10 percent pebbles, 30 percent cobbles, and 2 percent stones; neutral; clear smooth boundary.

B2—9 to 20 inches; light yellowish brown (10YR 6/4) very cobbly sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few medium roots and common fine and very fine roots; few fine and many very fine tubular pores; 15 percent pebbles, 30 percent cobbles, and 4 percent stones; neutral; clear wavy boundary.

C1—20 to 35 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, dark brown (10YR 4/3) moist; massive; hard, very friable, slightly sticky and nonplastic; few medium and fine roots and common very fine roots; few fine and very fine tubular pores; 35 percent pebbles, 15 percent cobbles, and 4 percent stones; neutral; abrupt wavy boundary.

R—35 inches; hard andesite.

Depth to unweathered bedrock is 20 to 40 inches. The particle size control section is very gravelly fine sandy loam, very cobbly sandy loam, or extremely cobbly sandy loam that is 5 to 10 percent clay.

Hotsprings Series

The Hotsprings series consists of very deep, well drained, rapidly permeable soils on alluvial fans. These soils formed in alluvium derived from granitic rocks. Slopes are 0 to 8 percent.

Typical pedon of Hotsprings gravelly loamy coarse sand, 0 to 2 percent slopes, about 500 feet north and 1,000 feet east of the southwest corner of sec. 3, T. 11 N., R. 23 E.

A11—0 to 1 inch; pale brown (10YR 6/3) very gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine interstitial pores; 60 percent fine pebbles; neutral; abrupt smooth boundary.

A12—1 to 4 inches; brown (10YR 5/3) gravelly loamy coarse sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine and many very fine tubular pores; 25 percent fine pebbles; neutral; abrupt smooth boundary.

A13—4 to 9 inches; brown (10YR 5/3) gravelly loamy sand, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; few fine and common very fine tubular pores; 25 percent fine pebbles; neutral; clear smooth boundary.

C1—9 to 15 inches; yellowish brown (10YR 5/4) gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; massive; hard, very friable, nonsticky and nonplastic; common fine roots; few fine and many very fine interstitial and tubular pores; 20 percent fine pebbles; few patchy clay films; neutral; clear smooth boundary.

C2—15 to 29 inches; yellowish brown (10YR 5/4) gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; few fine and many very fine tubular and interstitial pores; 30 percent fine pebbles; patchy clay bridges; neutral; clear smooth boundary.

C3—29 to 35 inches; yellowish brown (10YR 5/4) gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores and many very fine interstitial pores; 20 percent fine pebbles; neutral; clear smooth boundary.

C4—35 to 60 inches; yellowish brown (10YR 5/4) gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 25 percent fine pebbles; neutral.

The control section is gravelly loamy coarse sand or gravelly loamy sand that is 20 to 35 percent rock fragments, mostly fine pebbles.

Hough Series

The Hough series consists of very deep, well drained, moderately permeable soils on lake plains, terraces, and alluvial fans. These soils formed in eolian-modified alluvial and lacustrine sediment derived from intrusive and extrusive igneous rocks. Slopes are 0 to 2 percent.

Typical pedon of Hough sand, 0 to 2 percent slopes, about 1,700 feet east and 300 feet south of the northwest corner of sec. 16, T. 17 N., R. 25 E.

A11—0 to 3 inches; light gray (10YR 7/2) sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; many very fine roots; many very fine and fine interstitial pores; neutral; abrupt smooth boundary.

A12—3 to 6 inches; light brownish gray (10YR 6/2) sand, grayish brown (10YR 5/2) moist; weak thick platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores and few medium tubular pores; neutral; abrupt smooth boundary.

A13—6 to 10 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores and few medium tubular pores; slightly acid; clear wavy boundary.

IIB1—10 to 14 inches; light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; many very fine and fine vesicular pores; neutral; clear irregular boundary.

IIB2t—14 to 21 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; hard, friable, sticky and plastic; few medium roots and common very fine and fine roots; common very fine and fine tubular pores and common fine interstitial pores; common moderately thick clay films on peds and many thin and moderately thick clay films lining pores and bridging mineral grains; neutral; clear wavy boundary.

IIIB3—21 to 26 inches; brown (10YR 5/3) fine sand with strata of coarse sand about 1 centimeter thick, dark brown (10YR 4/3) moist; weak moderate subangular blocky structure; hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; few thin clay films bridging mineral grains; neutral; clear wavy boundary.

IIIC1—26 to 60 inches; uncoated, stratified yellowish brown (10YR 5/4) fine sand to coarse sand, dark yellowish brown (10YR 4/4) moist; many relict iron oxide mottles, single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; neutral.

The Bt horizon is sandy loam or sandy clay loam that is 18 to 25 percent clay. Reaction of the sandy substratum is neutral to moderately alkaline.

Hunewill Series

The Hunewill series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans and stream terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 2 to 30 percent.

Typical pedon of Hunewill very gravelly sandy loam, 2 to 8 percent slopes, about 750 feet south and 2,700 feet east of the northwest corner of sec. 29, T. 10 N., R. 24 E.

A11—0 to 1 inch; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 45 percent pebbles, 10 percent cobbles, and 1 percent stones; neutral; abrupt wavy boundary.

A12—1 to 3 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many fine and very fine vesicular pores; 35 percent pebbles, 5 percent cobbles, and 1 percent stones; neutral; clear wavy boundary.

B2t—3 to 13 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; common medium and fine roots and many very fine roots; common fine and many very fine tubular pores; 25 percent pebbles and 10 percent cobbles; continuous thin clay films on ped faces and lining pores; neutral; clear wavy boundary.

IIB3t—13 to 18 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few medium and fine roots and common very fine roots; few fine and many very fine interstitial pores; 40 percent pebbles and 15 percent cobbles; common thin clay bridges; neutral; clear wavy boundary.

IIC1—18 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine and very fine roots; many fine and very fine interstitial pores; 45 percent pebbles and 20 percent cobbles; neutral.

Thickness of the solum is 10 to 20 inches.

The Bt horizon averages 18 to 27 percent clay and 35 to 50 percent rock fragments.

The C horizon is extremely gravelly or extremely cobbly sand or loamy sand.

Hyloc Series

The Hyloc series consists of shallow, well drained, slowly permeable soils on mountainsides. These soils formed in residuum derived mainly from andesite and basalt. Slopes are 15 to 50 percent.

Typical pedon of Hyloc very cobbly sandy loam, 15 to 30 percent slopes, in an area of Hyloc-Ister association, about 800 feet west and 1,600 feet south of the northeast corner of sec. 10, T. 15 N., R. 22 E.

01—1 inch to 0; duff of pine needles around and under trees.

A1—0 to 3 inches; grayish brown (10YR 5/2) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and nonplastic; many fine vesicular pores and many very fine interstitial pores; many very fine roots; 20 percent cobbles, 20 percent pebbles, and 5 percent stones; slightly acid; abrupt smooth boundary.

B1t—3 to 5 inches; brown (7.5YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; strong fine granular structure; hard, very friable, slightly sticky and plastic; many very fine interstitial pores; many fine roots; 20 percent pebbles, 20 percent cobbles, and 15 percent stones; many thin clay films on peds; neutral; abrupt smooth boundary.

B2t—5 to 14 inches; brown (7.5YR 5/2) clay, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; very hard, very firm, sticky and plastic; common very fine tubular and interstitial pores; common fine and coarse roots and many medium roots; 10 percent pebbles; continuous moderately thick clay films on peds and lining pores; neutral; clear smooth boundary.

B3t—14 to 18 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; partially weathered minerals of varying colors; massive; hard, very friable, slightly sticky and slightly plastic; many very fine interstitial pores; few fine and coarse roots; many thin clay films lining pores; neutral; abrupt smooth boundary.

Cr—18 to 24 inches; gray (N 6/0) soft weathered basalt; clear smooth boundary.

R—24 inches; basalt.

The mollic epipedon is 7 to 14 inches thick. Thickness of the solum and depth to the paralithic contact are 14 to 20 inches. Depth to hard bedrock is 20 to 35 inches.

The B2t horizon averages 40 to 55 percent clay and has as much as 20 percent rock fragments.

Isolde Series

The Isolde series consists of very deep, excessively drained, very rapidly permeable soils on semi-stabilized dunes on terraces. These soils formed in eolian sand derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Isolde fine sand, 0 to 15 percent slopes, about 1,350 feet north and 1,800 feet west of the southeast corner of sec. 17, T. 17 N., R. 25 E.

A11—0 to 2 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; neutral; clear smooth boundary.

A12—2 to 7 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and many very

fine roots; many very fine interstitial pores; mildly alkaline; abrupt smooth boundary.

C1—7 to 21 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many medium roots, few fine roots, and common very fine roots; many very fine interstitial pores; moderately alkaline; clear wavy boundary.

C2—21 to 45 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few medium and fine roots and many very fine roots; many very fine interstitial pores; moderately alkaline; abrupt wavy boundary.

C3—45 to 60 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; moderately alkaline.

The control section is fine sand or sand. Reaction is neutral to moderately alkaline. In some pedons the lower part of the C horizon is strongly effervescent and strongly alkaline.

Ister Series

The Ister series consists of moderately deep, well drained, moderately slowly permeable soils on north- and east-facing mountainsides. These soils formed in residuum derived mainly from andesite. Slopes are 30 to 75 percent.

Typical pedon of Ister extremely stony sandy loam, 30 to 50 percent slopes, in an area of Hyloc-Ister association, about 1,700 feet east and 2,600 feet north of the southwest corner of sec. 9, T. 15 N., R. 22 E.

O1—1/2 inch to 0; duff of pine needles with 65 percent rock fragments, mainly stones.

A1—0 to 11 inches; dark grayish brown (10YR 4/2) extremely stony sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; many fine and very fine roots; 55 percent rock fragments, mostly stones; mildly alkaline; clear smooth boundary.

B1t—11 to 17 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine interstitial pores; common fine and medium roots and few coarse roots; 15 percent pebbles and 10 percent cobbles; few thin clay films and stains on pebbles; neutral; clear smooth boundary.

B21t—17 to 24 inches; light yellowish brown (10YR 6/4) very stony sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; common fine and very fine tubular and interstitial pores; common medium and coarse roots; 15 percent pebbles, 10 percent cobbles, and 20 percent stones; common thin clay films on peds and lining pores and colloidal stains on rock fragments; mildly alkaline; gradual irregular boundary.

B22t—24 to 38 inches; pale brown (10YR 6/3) very stony clay loam, brown (10YR 5/3) moist; massive; very hard, firm, sticky and plastic; few medium and fine roots; common fine and very fine tubular and interstitial pores; colloidal stains on rock fragments; mildly alkaline; abrupt irregular boundary with soi1 tongues in fractured bedrock; clear irregular boundary.

R—38 inches; fractured andesite.

The mollic epipedon is 10 to 18 inches thick, and in some pedons it includes the upper part of the Bt horizon. Thickness of the solum and depth to bedrock are 25 to 40 inches. Reaction is neutral or mildly alkaline.

The Bt horizon averages 25 to 35 percent clay and 35 to 50 percent rock fragments, mostly stones.

Juva Series

The Juva series consists of very deep, well drained, moderately rapidly permeable soils on broad alluvial fans. These soils formed in stratified alluvium derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Juva gravelly fine sandy loam, 2 to 4 percent slopes, about 2,640 feet south and 420 feet west of the northeast corner of sec. 32, T. 19 N., R. 25 E.

Ap—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine pores; 20 percent fine pebbles; strongly alkaline; abrupt smooth boundary.

A1—2 to 4 inches; light gray (10YR 7/2) loam, brown (10YR 5/3) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine roots; many fine and very fine pores; 10 percent pebbles; strongly alkaline; abrupt smooth boundary.

C1—4 to 27 inches; finely stratified gray and light brownish gray (10YR 7/2 and 6/2) sandy loam and very gravelly sand, grayish brown and dark grayish brown (10YR 5/2 and 4/2) moist; massive; loose, very friable, nonsticky and nonplastic; few medium and fine roots and many very fine roots; few medium and many fine and very fine interstitial pores; 25 percent fine pebbles; slightly effervescent; strongly alkaline; abrupt smooth boundary.

IIC2—27 to 35 inches; light gray (10YR 7/2) cobbly loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic;

common fine and very fine roots; few fine and many very fine tubular pores; 15 percent pebbles and 15 percent cobbles; slightly effervescent; moderately alkaline; gradual wavy boundary.

IIIC3—35 to 60 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; 30 percent pebbles; slightly effervescent; moderately alkaline.

Reaction is moderately alkaline or strongly alkaline. The control section is stratified gravelly sand to loam that averages 5 to 15 percent clay and as much as 30 percent rock fragments. The content of exchangeable sodium is 15 to 30 percent in some parts of the profile.

Koontz Series

The Koontz series consists of shallow, well drained, moderately slowly permeable soils on low mountains and hillsides. These soils formed in residuum and colluvium derived from Tertiary sediment. Slopes are 8 to 15 percent.

Typical pedon of Koontz very gravelly sandy loam, 8 to 15 percent slopes, in an area of Koontz-Ravenell-Haar association, about 1,600 feet west and 1,600 feet south of the northeast corner of sec. 6, T. 8 N., R 25 E.

A11—0 to 1 inch; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine interstitial pores; 25 percent gravel and 15 percent cobbles; neutral; abrupt smooth boundary.

A12—1 to 2 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common fine vesicular pores; 25 percent gravel and 15 percent cobbles; neutral; abrupt smooth boundary.

B1t—2 to 7 inches; grayish brown (10YR 5/2) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium and fine angular blocky structure; slightly hard, very friable, sticky and plastic; common medium roots and many fine and very fine roots; many fine tubular pores; 45 percent gravel and 5 percent cobbles; mildly alkaline; clear smooth boundary.

B2t—7 to 11 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, sticky and plastic; many medium and fine roots; many fine interstitial pores; common thin clay bridges between mineral grains; 45 percent gravel and 10 percent cobbles; mildly alkaline; clear smooth boundary.

B3—11 to 17 inches; yellowish brown (10YR 5/4) extremely gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common medium and fine roots; common fine interstitial pores; 45 percent gravel and 20 percent cobbles; mildly alkaline; abrupt smooth boundary.

Cr—17 inches; soft, weathered sedimentary rock.

The mollic epipedon is 7 to 20 inches thick. Depth to the paralithic contact is 8 to 20 inches.

The Bt horizon is very gravelly loam or very gravelly clay loam that is 20 to 35 percent clay and 35 to 60 percent rock fragments. Reaction is slightly acid to mildly alkaline.

Lahontan Series

The Lahontan series consists of very deep, somewhat poorly drained, very slowly permeable soils on old lake plains. These soils formed in fine textured lacustrine material. Slopes are 0 to 2 percent.

Typical pedon of Lahontan silty clay loam, strongly saline-alkali, about 1,200 feet north and 2,400 feet west of the southeast corner of sec. 6, T. 12 N., R. 24 E.

A1—0 to 1 inch; light gray (10YR 7/2) silty clay loam, brown (10YR 5/3) moist; massive; slightly hard, friable, very sticky and plastic; many fine and very fine vesicular pores; slightly effervescent; very strongly alkaline; abrupt smooth boundary.

C1—1 to 5 inches; light brownish gray (10YR 6/2) silty clay loam, brown (10YR 4/3) moist; moderate very fine granular structure; hard, friable, very sticky and very plastic; many very fine interstitial pores; strongly effervescent; very strongly alkaline; clear smooth boundary.

C2—5 to 12 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate fine and very fine granular structure; hard, friable, very sticky and very plastic; many very fine interstitial pores; strongly effervescent; very strongly alkaline; clear smooth boundary.

C3—12 to 18 inches; pale brown (10YR 6/3) silty clay, dark brown (10YR 3/3) moist; very pale brown (10YR 7/3) salt filaments; moderate fine granular structure; hard, friable, very sticky and very plastic; many very fine interstitial pores; slightly effervescent; very strongly alkaline; gradual smooth boundary.

C4—18 to 26 inches; pale brown (10YR 6/3) silty clay, dark brown (10YR 3/3) moist; many medium faint very dark grayish brown (2.5Y 4/2) iron-manganese mottles and very pale brown (10YR 7/4) salt filaments; moderate fine granular structure; hard, friable, very sticky and very plastic; many very fine

interstitial pores; slightly effervescent; very strongly alkaline; gradual smooth boundary.

C5—26 to 38 inches; light gray (2.5Y 7/2) clay, dark grayish brown (2.5Y 4/2) moist; many medium faint dark gray (N 4/0) iron-manganese mottles; strong fine angular blocky structure; very hard, firm, very sticky and very plastic; strongly effervescent; very strongly alkaline; gradual smooth boundary.

C6—38 to 52 inches; light gray (2.5Y 7/2) silty clay, dark grayish brown (2.5Y 4/2) moist; many medium distinct brown (10YR 4/3) iron mottles; massive; very hard, firm, very sticky and very plastic; strongly effervescent; very strongly alkaline; gradual smooth boundary.

C7—52 to 60 inches; light gray (2.5Y 7/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; many medium distinct brown (10YR 4/3) iron mottles; massive; very hard, firm, very sticky and plastic; strongly effervescent; very strongly alkaline.

The control section averages 35 to 60 percent clay. Faint or distinct mottles are at a depth of more than 15 inches.

Lapon Series

The Lapon series consists of very shallow, well drained, slowly permeable soils on hills and mountains. These soils formed in residuum and colluvium derived from extrusive igneous rocks. Slopes are 4 to 50 percent.

Typical pedon of Lapon extremely stony loam, 15 to 30 percent slopes, about 2,000 feet north and 600 feet east of the southwest corner of sec. 20, T. 12 N., R. 25 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) extremely stony loam, dark grayish brown (10YR 4/2) moist; weak medium and thin platy structure; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine vesicular pores; 40 percent pebbles, 20 percent cobbles, and 10 percent stones; neutral; abrupt smooth boundary.

B1t—2 to 3 inches; grayish brown (10YR 5/2) very gravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; slightly hard, firm, sticky and plastic; few fine and many very fine roots; many very fine interstitial pores; 40 percent pebbles and 5 percent cobbles; neutral; abrupt smooth boundary.

B2t—3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium and fine granular structure and moderate medium and fine blocky structure; very hard, firm, very sticky and very plastic; few medium roots and common fine and very fine roots; few fine and many very fine tubular pores; 40 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

B3tcasi—7 to 10 inches; brown (10YR 5/3) extremely gravelly clay loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; hard, firm, sticky and plastic; few medium and fine roots and common very fine roots; few fine and many very fine interstitial pores; 70 percent silica- and lime-coated pebbles and gravel-sized extremely hard silica and lime pan fragments; strongly effervescent; moderately alkaline; abrupt wavy boundary.

C1sicam—10 to 20 inches; white, indurated, silica- and lime-cemented hardpan; massive; violently effervescent, abrupt wavy boundary.

R—20 inches; hard andesite; silica and lime in fractures in upper part.

Thickness of the solum and depth to the duripan are 8 to 14 inches. Depth to bedrock is 15 to 40 inches.

The Bt horizon averages 30 to 35 percent clay and has 35 to 60 percent rock fragments, mostly pebbles. Reaction is neutral to strongly alkaline.

Loomer Series

The Loomer series consists of shallow, well drained, slowly permeable soils on the sides of low hills. These soils formed in residuum derived from rhyolite. Slopes are 15 to 50 percent.

Typical pedon of Loomer extremely cobbly loam, 15 to 30 percent slopes, in an area of Loomer-Zephan-Olac association, about 1,700 feet north and 1,000 feet east of the southwest corner of sec. 12, T. 14 N., R. 24 E.

A1—0 to 4 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; moderate medium and fine granular structure; soft, friable, slightly sticky and slightly plastic; common fine and many very fine roots; many fine and very fine tubular and vesicular pores; 35 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

B1t—4 to 7 inches; brown (7.5YR 4/4) extremely cobbly clay loam, brown (7.5YR 4/4) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; common medium and fine roots and many very fine roots; few fine and many very fine tubular pores; 35 percent pebbles, 25 percent cobbles, and 5 percent stones; continuous thin and moderately thick clay films on ped faces and in pores; neutral; clear wavy boundary.

B2t—7 to 15 inches; dark yellowish brown (10YR 4/4) extremely cobbly clay, dark yellowish brown (10YR 4/4) moist; strong medium and fine subangular blocky structure; very hard, firm, very sticky and very plastic; common medium, fine, and very fine roots; few fine and many very fine tubular pores; 35 percent pebbles, 25 percent cobbles, and 5 percent

stones; few thick clay films and common thin and moderately thick clay films on peds; neutral; abrupt wavy boundary.

R—15 inches; fractured rhyolite; clay coatings and roots along fractures in the upper few inches.

The mollic epipedon is 7 to 9 inches thick, and it includes the upper part of the Bt horizon. Thickness of the solum and depth to bedrock are 14 to 20 inches. The profile is neutral or mildly alkaline.

The Bt horizon is extremely cobbly clay, extremely gravelly clay, or extremely cobbly clay loam that is 35 to 50 percent clay and 60 to 80 percent rock fragments.

Lox Series

The Lox series consists of very deep, well drained, slowly permeable soils on old alluvial fans. These soils formed in alluvium derived from andesitic and granitic rocks. Slopes are 2 to 4 percent.

Typical pedon of Lox gravelly fine sandy loam, 2 to 4 percent slopes, in an area of Delp-Lox association, about 1,700 feet south and 2,100 feet west of the northeast corner of sec. 28, T. 13 N., R. 24 E.

A11—0 to 1 inch; light brownish gray (10YR 6/2) gravelly fine sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; 15 percent pebbles; strongly alkaline; abrupt wavy boundary.

A12—1 to 3 inches; light gray (10YR 7/2) gravelly loam, grayish brown (10YR 5/2) moist; massive; hard, friable, sticky and slightly plastic; few fine and very fine roots; many fine and very fine vesicular pores; 15 percent pebbles; strongly effervescent in spots; very strongly alkaline; abrupt wavy boundary.

B2t—3 to 8 inches; pale brown (10YR 6/3) clay loam, brown (10YR 5/3) moist; weak fine prismatic structure parting to moderate fine subangular blocky; slightly hard, friable, very sticky and plastic; many fine and very fine roots; many very fine tubular pores; strongly effervescent in spots; very strongly alkaline; clear wavy boundary.

IIC1—8 to 12 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; 35 percent pebbles; strongly effervescent; strongly alkaline; clear wavy boundary.

IIC2—12 to 25 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; 40 percent pebbles; strongly effervescent; very strongly alkaline; clear wavy boundary.

IIC3—25 to 60 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine interstitial pores; 45 percent pebbles; strongly effervescent; very strongly alkaline.

Thickness of the solum and depth to the unconformable IIC material are 6 to 10 inches. A desert pavement is common in most areas.

The A1 horizon varies in thickness because of the amount of wind erosion and the amount of eolian fine sand particles deposited on the surface.

The B2t horizon is loam, sandy clay loam, or clay loam and averages 25 to 35 percent clay and less than 15 percent rock fragments. Content of exchangeable sodium is 15 to 35 percent. Reaction is strongly alkaline or very strongly alkaline.

The C horizon is very gravelly loam or very gravelly sandy loam that is 35 to 60 percent pebbles. Reaction is strongly alkaline or very strongly alkaline. The horizon is slightly effervescent to strongly effervescent.

Lunder Series

The Lunder series consists of shallow, well drained, slowly permeable soils on old alluvial fans. These soils formed in alluvium derived from andesite and basalt. Slopes are 2 to 15 percent.

Typical pedon of Lunder very cobbly loam, 2 to 15 percent slopes, about 2,000 feet south and 1,500 feet east of the northwest corner of sec. 30, T. 15 N., R. 22 E.

A1—0 to 2 inches; grayish brown (10YR 5/2) extremely cobbly loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine and fine interstitial pores; 20 percent pebbles, 50 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

B1—2 to 7 inches; brown (7.5YR 4/2) cobbly clay loam, dark brown (7.5YR 3/2) moist; moderate medium prismatic structure; hard, firm, sticky and plastic; many fine and very fine tubular and interstitial pores; common thin clay films on rock fragments; 15 percent pebbles and 10 percent cobbles; neutral; abrupt smooth boundary.

B21t—7 to 12 inches; brown (7.5YR 5/4) cobbly clay, brown (7.5YR 4/4) moist; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; few medium, fine, and very fine roots; few fine and very fine tubular pores; many pressure faces; 10 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.

B22t—12 to 16 inches; brown (7.5YR 5/4) cobbly clay, brown (7.5YR 4/4) moist; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; few fine and very fine roots; few fine and

very fine tubular pores; many pressure faces; 10 percent pebbles and 10 percent cobbles; neutral; abrupt smooth boundary.

C1sicam—16 to 25 inches; very pale brown (10YR 7/3), indurated, silica- and lime-cemented hardpan, brown (7.5YR 4/4) moist; massive; slightly effervescent in spots; strongly alkaline; clear smooth boundary.

C2sicam—25 to 31 inches; very pale brown (10YR 7/3), strongly silica- and lime-cemented duripan, brown (7.5YR 4/4) moist; massive; strongly effervescent; very strongly alkaline; clear smooth boundary.

C3sica—31 to 60 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, brown (10YR 4/3) moist; massive; hard and very hard, weakly and strongly silica- and lime-cemented layers; 30 percent pebbles, 40 percent cobbles, and 10 percent stones; slightly effervescent in spots; moderately alkaline.

The mollic epipedon is 7 to 10 inches thick. Thickness of the solum and depth to the indurated duripan are 14 to 20 inches. Reaction is neutral throughout the solum and is moderately alkaline to very strongly alkaline below.

The Bt horizon has 50 to 60 percent clay and 20 to 35 percent rock fragments.

Luppino Series

The Luppino series consists of shallow, well drained, moderately slowly permeable soils on low hills. These soils formed in residuum derived from granitic bedrock. Slopes are 8 to 15 percent.

Typical pedon of Luppino gravelly sandy loam, 8 to 15 percent slopes, about 1,850 feet north and 1,250 feet east of the southwest corner of sec. 35, T. 9 N., R. 25 E.

A11—0 to 2 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium and fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent fine pebbles; neutral; abrupt smooth boundary.

A12—2 to 7 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and many very fine roots; many very fine interstitial pores; 10 percent fine pebbles; neutral; abrupt smooth boundary.

B2t—7 to 12 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium roots and many fine and very fine roots; few fine and many very fine tubular pores; 10 percent fine pebbles; many thin clay bridges and common thin clay films on peds and lining pores; neutral; clear smooth boundary.

Cr—12 to 21 inches; soft granitic bedrock; clay coatings and roots in fractures, gradual wavy boundary.

R—21 inches; granitic bedrock.

Thickness of the solum and depth to the paralithic contact are 12 to 20 inches. Depth to hard bedrock is 20 to 30 inches. Reaction is neutral to medium acid.

The B2t horizon is sandy clay loam or gravelly sandy clay loam that is 20 to 30 percent clay.

Malpais Series

The Malpais series consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans and in alluvial drainageways. These soils formed in alluvium derived from mixed rock sources. Slopes are 2 to 15 percent.

Typical pedon of Malpais gravelly loamy sand, 2 to 8 percent slopes, about 2,650 feet south of the northwest corner of sec. 16, T. 12 N., R. 25 E.

A11—0 to 3 inches; light brownish gray (10YR 6/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine and many very fine interstitial pores; 15 percent pebbles and 10 percent cobbles; neutral; abrupt smooth boundary.

A12—3 to 10 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; few fine and many very fine interstitial pores; 25 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.

B21—10 to 17 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium and fine roots and common very fine roots; few fine and many very fine interstitial and tubular pores; few very thin clay bridges; 30 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.

B22—17 to 25 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium and fine roots and common very fine roots; few fine and many very fine interstitial and tubular pores; 25 percent pebbles and 30 percent cobbles; neutral; clear wavy boundary.

C1ca—25 to 44 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 40 percent pebbles and 30 percent cobbles; moderately alkaline; strongly effervescent; clear wavy boundary.

C2ca—44 to 60 inches; grayish brown (10YR 5/2) very cobbly sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; slightly effervescent; 15 percent cobbles and 20 percent pebbles; moderately alkaline.

Thickness of the solum is 15 to 35 inches. The control section averages 10 to 18 percent clay and 50 to 70 percent rock fragments. Reaction is neutral to strongly alkaline.

Minneha Series

The Minneha series consists of shallow, somewhat excessively drained, moderately rapidly permeable soils on mountainsides. These soils formed in residuum derived from granitic bedrock. Slopes are 30 to 75 percent.

Typical pedon of Minneha extremely stony sandy loam, 50 to 75 percent slopes, in an area of Minneha-Drit-Rock outcrop association, about 700 feet north and 1,650 feet east of the southwest corner of sec. 9, T. 11 N., R. 23 E.

A11—0 to 5 inches; dark grayish brown (10YR 4/2) extremely stony sandy loam, very dark brown (10YR 2/2) moist; weak medium and fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; many very fine interstitial pores; 30 percent pebbles, 20 percent cobbles, and 25 percent stones; neutral; clear smooth boundary.

A12—5 to 12 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common coarse, medium, and fine roots and many very fine roots; many very fine interstitial pores; 35 percent pebbles and 10 percent cobbles; neutral; clear smooth boundary.

C1—12 to 18 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium and coarse roots and common fine and very fine roots; many very fine interstitial pores; 40 percent pebbles and 15 percent cobbles; neutral; abrupt wavy boundary.

C2r—18 inches; weathered granitic bedrock.

The mollic epipedon is 11 to 18 inches thick. Depth to the paralithic contact is 13 to 20 inches. Reaction is slightly acid to mildly alkaline. The control section has 6 to 15 percent clay and 35 to 60 percent rock fragments, mainly pebbles.

Mirkwood Series

The Mirkwood series consists of very shallow, well drained, moderately slowly permeable soils on mountainsides. These soils formed in residuum derived from basic igneous rock. Slopes are 15 to 75 percent.

Typical pedon of Mirkwood very cobbly fine sandy loam, in an area of Mirkwood-Nemico association, 1,550 feet south and 2,400 feet west of the projected northeast corner of sec. 3, T. 16 N., R. 27 E.

A1—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium and thick platy structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; many very fine interstitial pores; 40 percent pebbles, 15 percent cobbles, and 5 percent stones; mildly alkaline; clear smooth boundary.

B1t—4 to 7 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few fine and common very fine roots; common fine and many very fine tubular pores; few very thin clay bridges; 35 percent pebbles, 10 percent cobbles, and 5 percent stones; moderately alkaline; clear smooth boundary.

B2t—7 to 11 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; few fine and common very fine roots; few fine and common very fine tubular pores; common thin clay films on peds and lining pores; 25 percent pebbles, 10 percent cobbles, and 5 percent stones; moderately alkaline; clear wavy boundary.

B3tca—11 to 14 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; common fine and very fine roots; common very fine pores; common thin clay films on peds and lining pores; 30 percent pebbles, 10 percent cobbles, and 5 percent stones; strongly effervescent; moderately alkaline; abrupt wavy boundary.

R—14 inches; fractured, lime-coated andesite.

Thickness of the solum and depth to bedrock are 7 to 14 inches. The control section averages 18 to 27 percent clay and 35 to 50 percent rock fragments. Reaction is neutral to strongly alkaline, commonly increasing in alkalinity with depth.

The Bt horizon averages very gravelly loam or very gravelly clay loam that is 25 to 35 percent clay. Some pedons have lime-coated pebbles and a slightly

effervescent to strongly effervescent matrix in the lower part.

Nall Series

The Nall series consists of shallow, well drained, moderately rapidly permeable soils on rolling uplands. These soils formed in residuum derived from granitic bedrock. Slopes are 8 to 15 percent.

Typical pedon of Nall gravelly sandy loam, in an area of Nall-Luppino-Hotsprings association, about 2,900 feet north and 1,500 feet east of the southwest corner of sec. 27, T. 9 N., R. 25 E.

A11—0 to 2 inches; grayish brown (10YR 5/2) gravelly loamy sand, very dark brown (10YR 2/2) moist; weak medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 20 percent fine pebbles; neutral; abrupt smooth boundary.

A12—2 to 5 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; many very fine interstitial pores; 15 percent pebbles; neutral; abrupt smooth boundary.

A13—5 to 8 inches; brown (10YR 4/3) gravelly coarse sandy loam, very dark brown (10YR 2/2) moist; weak medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; many very fine interstitial pores; 30 percent fine pebbles; neutral; abrupt wavy boundary.

Cr—8 to 20 inches; decomposed granitic bedrock; some roots in fractures, gradual wavy boundary.

R—20 inches; hard granitic bedrock.

The mollic epipedon is 7 to 12 inches thick. Depth to the paralithic contact is 7 to 20 inches. The profile is 4 to 10 percent clay and 15 to 35 percent rock fragments, mainly fine pebbles. Reaction is slightly acid or neutral.

The C horizon, where present, is gravelly sandy loam or gravelly loamy coarse sand that is 15 to 35 percent fine pebbles.

Nemico Series

The Nemico series consists of shallow, well drained, very slowly permeable soils on plateaus. These soils formed in residuum derived from basic igneous rocks. Slopes are 0 to 30 percent.

Typical pedon of Nemico very stony sandy loam, in an area of Mirkwood-Nemico association, about 2,500 feet east-northeast of benchmark 5810; 1,450 feet east and 1,050 feet south of projected northwest corner of sec. 4, T. 15 N., R. 27 E.

A11—0 to 1 inch; light brownish gray (10YR 6/2) very stony loamy fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; 35 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

A12—1 to 6 inches; light gray (10YR 7/1) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; many medium and fine vesicular pores; 30 percent pebbles; moderately alkaline; abrupt wavy boundary.

B2t—6 to 13 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic structure parting to strong fine subangular blocky; hard, firm, sticky and very plastic; common fine and many very fine roots; few fine and many very fine tubular pores; many thin and moderately thick clay films on peds and lining pores; 20 percent pebbles; strongly alkaline; clear wavy boundary.

B3tca—13 to 18 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; very hard, firm, sticky and very plastic; few fine and common very fine roots; few fine and many very fine tubular pores; common thin clay films on peds and lining pores; 20 percent pebbles; strongly effervescent; strongly alkaline, abrupt smooth boundary.

C1sicam—18 to 21 inches; very pale brown (10YR 7/3) indurated duripan, brown (10YR 5/3) moist; massive; extremely hard, extremely firm; violently effervescent, abrupt wavy boundary.

R—21 inches; hard andesite.

Thickness of the solum is 10 to 18 inches. The depth to the indurated duripan is 10 to 20 inches, and the depth to bedrock is 11 to 25 inches.

The Bt horizon is gravelly clay loam or gravelly clay that is 35 to 45 percent clay. Reaction is moderately alkaline or strongly alkaline.

Nosrac Series

The Nosrac series consists of very deep, well drained, moderately slowly permeable soils on mountainsides. These soils formed in residuum and colluvium derived from andesite and basalt. Slopes are 30 to 50 percent.

Typical pedon of Nosrac stony loam, in an area of Cagle-Nosrac association, about 9 miles south and 3 miles east of Dayton, 400 feet east and 550 feet north of the southwest corner of sec. 5, T. 14 N., R. 22 E.

A11—0 to 4 inches; grayish brown (10YR 5/2) stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse granular structure; soft, very friable, nonsticky and nonplastic; many

fine and very fine roots; many fine and very fine interstitial pores; 15 percent pebbles and 2 percent stones; slightly acid; clear wavy boundary.

A12—4 to 12 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, sticky and slightly plastic; many medium roots and common fine and very fine roots; many fine and very fine tubular and interstitial pores and few medium and coarse tubular pores; 20 percent pebbles and 15 percent cobbles; slightly acid; clear wavy boundary.

B21t—12 to 17 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; strong medium and fine subangular blocky structure; slightly hard, friable, sticky and plastic; common coarse, medium, fine, and very fine roots; common medium and fine pores and many very fine pores; many thin clay bridges and many thin clay films lining pores; 20 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

B22t—17 to 30 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 4/3) moist; strong medium and fine subangular blocky structure; hard, firm, sticky and plastic; few medium, fine, and very fine roots; common fine and very fine tubular pores; many thin clay bridges and many thin clay films on peds and lining pores; 25 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.

B23t—30 to 45 inches; pale brown (10YR 6/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few medium, fine, and very fine roots; common fine and very fine tubular pores; common thin clay films on peds and lining pores; 40 percent pebbles and 15 percent cobbles; neutral; abrupt wavy boundary.

B3t—45 to 60 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium, fine, and very fine roots; common fine and very fine tubular pores; common thin clay films on peds and lining pores; 35 percent pebbles and 15 percent cobbles; neutral.

The mollic epipedon is 14 to 20 inches thick. The thickness of the solum is more than 50 inches. Depth to bedrock is more than 60 inches. Reaction is slightly acid or neutral.

The B2t horizon averages very gravelly loam or very gravelly clay loam that is 25 to 35 percent clay and 35 to 60 percent rock fragments.

The B3t horizon is very gravelly fine sandy loam to very gravelly clay loam and averages 18 to 30 percent clay.

A C horizon is in some pedons.

Obanion Series

The Obanion series consists of very deep, very poorly drained, moderately slowly permeable soils in small depressional areas and seep areas of alluvial fans and alluvial flats. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Obanion loamy coarse sand, about 500 feet south and 500 feet west of the northeast corner of sec. 15, T. 11 N., R. 23 E.

A11—0 to 7 inches; grayish brown (10YR 5/2) loamy coarse sand, grayish brown (10YR 5/2) dry; single grain; loose, nonsticky and nonplastic; many very fine roots, 1/2-inch root mat on surface; common very fine tubular pores and many very fine interstitial pores; mildly alkaline; abrupt wavy boundary.

A12—7 to 11 inches; very dark grayish brown (10YR 3/2) coarse sandy loam, gray (5Y 6/1) dry; many medium and coarse distinct dark reddish brown (10YR 3/4) iron mottles; massive; hard, friable, nonsticky and nonplastic; many very fine roots in pockets; common very fine interstitial pores; strongly alkaline; clear smooth boundary.

C1—11 to 15 inches; brown (10YR 4/3) sandy clay loam, dark gray and light gray (5Y 4/1 and 7/1) dry; few medium and coarse distinct dark reddish brown (5YR 3/4) iron mottles and few very coarse prominent dark greenish gray (5G 4/1) gleyed spots; massive; very hard, firm, sticky and plastic; common very fine roots; common very fine interstitial pores; very strongly alkaline; clear smooth boundary.

C2g—15 to 22 inches; dark greenish gray (5G 4/1) and light yellowish brown (2.5Y 6/4) sandy clay loam, light greenish gray (5G 7/1) dry; massive; very hard, firm, sticky and plastic; few very fine roots; 15 percent 1/2-inch firm durinodes; strongly effervescent; very strongly alkaline; abrupt wavy boundary.

C3—22 to 34 inches; light olive brown (2.5Y 5/4) sandy loam, light gray (5Y 7/1) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; strongly effervescent; strongly alkaline; abrupt wavy boundary.

C4ca—34 to 60 inches; dark olive gray (5Y 3/2) sandy loam, gray (5Y 6/1) dry; many medium and coarse distinct olive (5Y 5/4) iron mottles and many medium and coarse prominent pink (5YR 7/3) soft lime masses; massive; slightly hard, friable, slightly sticky and slightly plastic; 15 percent 1/2-inch durinodes; strongly effervescent; very strongly alkaline.

The control section is stratified, but it averages loam or sandy clay loam that is 18 to 35 percent clay and less than 5 percent rock fragments. Content of exchangeable sodium is 15 to 35 percent in more than half of the

upper 20 inches, and it decreases with depth. The profile is noncalcareous to strongly effervescent throughout, but it is noncalcareous in some part between depths of 10 and 20 inches in all pedons. Reaction is strongly alkaline to very strongly alkaline.

Olac Series

The Olac series consists of very shallow, well drained, moderately permeable soils on hills and mountains. These soils formed in residuum derived from rhyolite, conglomerate, and basalt. Slopes are 8 to 75 percent.

Typical pedon of Olac extremely stony loam, 15 to 50 percent slopes, in an area of Loomer-Zephan-Olac association, 250 feet north and 50 feet west of the southeast corner of sec. 11, T. 14 N., R. 23 E.

A1—0 to 4 inches; grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse granular structure; slightly hard, friable, slightly sticky and nonplastic; few fine and many very fine roots; many fine and very fine tubular pores; 30 percent pebbles, 15 percent cobbles, and 15 percent stones; neutral; clear wavy boundary.

B21t—4 to 8 inches; dark yellowish brown (10YR 4/4) extremely gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium and fine subangular blocky structure; hard, firm, sticky and plastic; few medium roots and common fine and many very fine roots; few fine and common very fine tubular pores; few thin clay films on peds and lining pores; 40 percent pebbles, 20 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

B22t—8 to 14 inches; yellowish brown (10YR 5/4) extremely gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; few medium roots, common fine roots, and many very fine roots; common very fine tubular pores; common thin clay films on peds and lining pores; 40 percent pebbles, 20 percent cobbles, and 5 percent stones; mildly alkaline; abrupt wavy boundary.

R—14 inches; hard, fractured rhyolite; roots and clay films in fractures.

Thickness of the solum and depth to bedrock are 8 to 14 inches. The control section averages 18 to 27 percent clay and 35 to 60 percent rock fragments. Reaction is slightly acid to mildly alkaline.

The Bt horizon is extremely gravelly loam or extremely gravelly clay loam that is 23 to 30 percent clay and 60 to 75 percent rock fragments, mainly pebbles.

Old Camp Series

The Old Camp series consists of shallow, well drained, moderately slowly permeable soils on uplands. These soils formed in residuum derived from basic igneous rock. Slopes are 8 to 75 percent.

Typical pedon of Old Camp extremely stony loam, 30 to 50 percent slopes, in an area of Old Camp-Mirkwood-Nemico association, about 750 feet north and 2,000 feet east of the southwest corner of sec. 1, T. 7 N., R. 26 E.

A11—0 to 2 inches; grayish brown (10YR 5/2) extremely stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 25 percent pebbles, 20 percent cobbles, and 40 percent stones; neutral; abrupt wavy boundary.

A12—2 to 4 inches; light gray (10YR 7/2) very stony silt loam, grayish brown (10YR 4/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few medium and many fine and very fine vesicular pores; 5 percent pebbles, 10 percent cobbles, and 30 percent stones; neutral; abrupt wavy boundary.

B1t—4 to 8 inches; light gray (10YR 7/2) very cobbly loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and common very fine roots; common fine and very fine tubular pores; few thin clay films on peds; 20 percent pebbles, 20 percent cobbles, and 10 percent stones; neutral; clear wavy boundary.

B2t—8 to 14 inches; pale brown (10YR 6/3) extremely cobbly clay loam, brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; few medium, common fine, and many very fine tubular pores; continuous thin clay bridges and few thin and moderately thick clay films on ped faces and lining pores; 40 percent pebbles, 20 percent cobbles, and 10 percent stones; thin coatings of lime on underside of rock fragments; mildly alkaline; abrupt wavy boundary.

R—14 inches; hard, lime-coated andesite.

Thickness of the solum and depth to bedrock are 10 to 20 inches. Reaction of the profile is neutral to strongly alkaline, commonly increasing in alkalinity with depth.

The Bt horizon is loam, sandy clay loam, or clay loam that is 25 to 35 percent clay and 50 to 75 percent rock fragments.

Oppio Series

The Oppio series consists of moderately deep, well drained, slowly permeable soils on low hills and mountains. These soils formed in residuum derived from basic igneous rock. Slopes are 30 to 50 percent.

Typical pedon of Oppio very stony fine sandy loam, in an area of Oppio-Nosrac association, about 260 feet

north and 780 feet east of the southwest corner of sec. 34, T. 16 N., R. 21 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very stony fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine and very fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and many very fine interstitial pores; 20 percent pebbles, 15 percent cobbles, and 20 percent stones; neutral; abrupt wavy boundary.

B1t—2 to 6 inches; grayish brown (10YR 5/2) cobbly clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common fine and very fine roots; common very fine interstitial pores; 15 percent cobbles and 20 percent gravel; neutral; clear wavy boundary.

B21t—6 to 15 inches; pale brown (10YR 6/3) clay, brown (10YR 5/3) moist; strong medium and coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few medium roots and common fine and very fine roots; many fine and very fine pores; continuous thin and moderately thick clay films on peds and lining pores; neutral; clear wavy boundary.

B22t—15 to 31 inches; pale brown (10YR 6/3) clay, brown (10YR 5/3) moist; strong medium and coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; common medium and fine roots and many very fine roots; many fine and very fine pores; continuous thin and moderately thick clay films on peds and lining pores; slightly effervescent in spots near the bedrock; mildly alkaline; abrupt wavy boundary.

R—31 inches; hard andesite; clay coatings and roots in fractures.

Thickness of the solum and depth to bedrock are 20 to 40 inches. Reaction is neutral or mildly alkaline.

The B2t horizon averages 40 to 50 percent clay and 5 to 15 percent rock fragments.

Orizaba Series

The Orizaba series consists of very deep, somewhat poorly drained, moderately slowly permeable soils on alluvial flats and old lake plains. These soils formed in alluvium and lacustrine material derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Orizaba silty clay loam, about 1,300 feet south and 1,600 feet west of the northeast corner of sec. 36, T. 12 N., R. 25 E.

A1—0 to 3 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate medium and thin platy structure; slightly hard, friable, sticky and plastic; few very fine roots; few fine and many very fine tubular pores; strongly effervescent; very strongly alkaline; abrupt smooth boundary.

C1—3 to 12 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; massive; slightly hard, friable, sticky and plastic; few medium, fine, and very fine roots; few fine and many very fine tubular pores; strongly effervescent; very strongly alkaline; gradual smooth boundary.

C2—12 to 21 inches; light brownish gray (10YR 6/2) silty clay loam, brown (10YR 4/3) moist; massive; hard, friable, sticky and plastic; few medium, fine, and very fine roots; few fine and very fine tubular pores; strongly effervescent; very strongly alkaline; clear smooth boundary.

C3—21 to 34 inches; light brownish gray (10YR 6/2) clay loam, brown (10YR 4/3) moist; very dark brown and dark yellowish brown manganese stains; massive; very hard, friable, sticky and plastic; few medium, fine, and very fine roots; few fine and many very fine tubular pores; strongly effervescent; very strongly alkaline; clear smooth boundary.

C4—34 to 60 inches; light brownish gray (10YR 6/2) clay loam, brown (10YR 4/3) moist; many large faint dark grayish brown and dark yellowish brown iron mottles; massive; very hard, friable, very sticky and very plastic; few fine and very fine roots; few fine and many very fine tubular pores; strongly effervescent; strongly alkaline.

The profile is slightly effervescent to violently effervescent and is strongly saline- and alkali-affected. In places a salt crust or salt efflorescence is on the surface. Content of exchangeable sodium is 15 to 40 percent in the upper 20 inches, decreasing with depth. The control section averages 25 to 35 percent clay and less than 5 percent rock fragments. Reaction is strongly alkaline to very strongly alkaline.

Osobb Series

The Osobb series consists of shallow, well drained, moderately rapidly permeable soils on uplands. These soils formed in residuum derived from basic igneous rock and soft tuff. Slopes are 8 to 30 percent.

Typical pedon of Osobb very stony very fine sandy loam, in an area of Pirouette-Osobb-Rock outcrop association, about 1,800 feet south and 1,800 feet west of the northeast corner of sec. 22, T. 19 N., R. 25 E.

A1—0 to 1 inch; light brownish gray (10YR 6/2) very stony very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 20 percent pebbles, 25 percent cobbles, and 15 percent stones; strongly

effervescent; moderately alkaline; abrupt smooth boundary.

C1ca—1 to 4 inches; light gray (10YR 7/2) very stony loam, brown (10YR 5/3) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and common very fine roots; many very fine tubular pores; 20 percent pebbles, 35 percent cobbles, and 1 percent stones; violently effervescent; strongly alkaline; clear wavy boundary.

C2—4 to 11 inches; pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium roots and common fine and very fine roots; few fine and common very fine tubular pores; 35 percent pebbles, 25 percent cobbles, and 1 percent stones; slightly effervescent; strongly alkaline; abrupt wavy boundary.

C3casim—11 to 12 inches; indurated, silica- and lime-cemented duripan.

R—12 inches; tuff bedrock; coatings of silica and lime in fractures.

Depth to the indurated duripan is 8 to 20 inches. The duripan is 1/2 to 5 inches thick. Depth to the bedrock is 9 to 30 inches. The profile is loam, very fine sandy loam, or fine sandy loam that is 12 to 18 percent clay and 55 to 80 percent rock fragments, mostly cobbles and stones.

Otomo Series

The Otomo series consists of very shallow, well drained, moderately rapidly permeable soils on old alluvial fans. These soils formed in alluvium derived from mixed rock sources. Slopes are 4 to 15 percent.

Typical pedon of Otomo gravelly sandy loam, 4 to 15 percent slopes, about 800 feet north and 100 feet east of the southwest corner of sec. 30, T. 12 N., R. 25 E.

A1—0 to 1 inch; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; many fine vesicular pores; slightly effervescent; 25 percent pebbles; strongly alkaline; abrupt smooth boundary.

C1—1 to 4 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; many fine and very fine tubular pores; strongly effervescent; 25 percent pebbles; strongly alkaline; clear smooth boundary.

C2casi—4 to 10 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; many medium, fine, and very fine roots; many very fine interstitial pores; 30 percent hard durinodes; 45 percent pebbles; strongly effervescent; strongly alkaline; abrupt wavy boundary.

C3casim—10 to 23 inches; white (10YR 8/2) and pale brown (10YR 6/3) silica- and lime-cemented, indurated duripan, pale brown (10YR 6/3) moist; dark yellowish brown (10YR 4/4) silica laminae; massive; extremely hard; violently effervescent; strongly alkaline; gradual wavy boundary.

C4casi—23 to 60 inches; light gray (10YR 7/2) extremely gravelly loamy sand, grayish brown (10YR 5/2) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores; 20 percent hard durinodes; violently effervescent; 65 percent pebbles; very strongly alkaline.

Depth to the duripan is 6 to 14 inches. The control section has 5 to 18 percent clay and 35 to 60 percent rock fragments, mostly pebbles. Reaction is moderately to very strongly alkaline. The profile is noneffervescent to violently effervescent above the duripan. The duripan has 1 or more continuous, indurated laminae in the upper part.

The part of the C horizon below the duripan has 35 to 80 percent rock fragments.

Parran Series

The Parran series consists of very deep, somewhat poorly drained, very slowly permeable soils on lake plains and basins. These soils formed in lacustrine sediment derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Parran silty clay loam, about 2,940 feet south of the northwest corner of sec. 23, T. 15 N., R. 25 E.

A1sa—0 to 1 inch; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, firm, sticky and plastic; common fine and medium tubular pores; strongly alkaline; abrupt smooth boundary.

C1sa—1 to 3 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; massive; soft, firm, sticky and plastic; slightly effervescent; 4.8 percent salt; strongly alkaline; abrupt smooth boundary.

C2sa—3 to 7 inches; dark grayish brown (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist; many white (10YR 8/2) salt crystals; massive; slightly hard, firm, sticky and plastic; few medium and fine roots; few fine and medium tubular pores; slightly effervescent; 5.4 percent salt; strongly alkaline; clear smooth boundary.

C3sa—7 to 18 inches; dark grayish brown (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist;

few pale brown (10YR 6/3) lime nodules and common white (10YR 8/2) salt crystals; massive; hard, firm, sticky and plastic; few medium and fine roots; few fine and very fine tubular pores; slightly effervescent matrix and strongly effervescent lime nodules; 3.4 percent salt; strongly alkaline; clear smooth boundary.

C4sa—18 to 28 inches; dark grayish brown (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist; common fine faint mottles; massive; hard, firm, sticky and plastic; few fine and very fine tubular pores; strongly effervescent; 2.3 percent salt; strongly alkaline; clear smooth boundary.

C5sa—28 to 40 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine faint mottles; massive; hard, friable, sticky and slightly plastic; few fine and very fine tubular pores; slightly effervescent; 2.3 percent salt; strongly alkaline; gradual smooth boundary.

C6—40 to 72 inches; pale brown (10YR 6/3) silty clay loam finely stratified with loamy fine sand, brown (10YR 4/3) moist; massive; hard, firm, sticky and plastic; slightly effervescent; strongly alkaline.

The control section is silty clay loam, silty clay, or clay that is 35 to 55 percent clay. The salic horizon is 9 to 40 inches thick and has 2 to 6 percent salt. Some pedons have a secondary salic horizon between depths of 24 and 36 inches because of the water table being artificially lowered. Lime concretions or lime nodules are present in most pedons. Below a depth of 40 inches the profile has thin lenses of loam to loamy fine sand. Reaction of the profile is strongly alkaline or very strongly alkaline.

Patna Series

The Patna series consists of very deep, somewhat excessively drained, moderately rapidly permeable soils on lake plains, relict lacustrine deltas, and dunes and in pockets on hillsides. These soils formed in basin fill material and eolian deposits derived from mixed rock sources. Slopes are 0 to 30 percent.

Typical pedon of Patna fine sand, 4 to 15 percent slopes, about 1,650 feet south and 2,550 feet west of the northeast corner of sec. 17, T. 12 N., R. 25 E.

A1—0 to 5 inches; brown (10YR 5/3) fine sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few fine and many very fine roots; many very fine interstitial pores; neutral; abrupt smooth boundary.

B2t—5 to 11 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few fine and medium roots and common very fine roots; many very fine interstitial pores and few very fine tubular pores; many thin and few moderately thick clay films on peds and bridging mineral grains; neutral; clear wavy boundary.

B3t—11 to 21 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few fine and medium roots and common very fine roots; many very fine interstitial pores; common thin clay bridges; neutral; clear wavy boundary.

C1—21 to 41 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common medium, fine and very fine roots; many very fine interstitial pores; mildly alkaline; gradual wavy boundary.

C2—41 to 60 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; mildly alkaline.

The solum is 20 to 40 inches thick. Reaction is neutral or mildly alkaline in the solum and mildly alkaline to moderately alkaline in the C horizon. Some pedons are moderately alkaline to strongly alkaline below a depth of 40 inches.

The Bt horizon is 10 to 22 inches thick. It commonly is fine sandy loam, but in some pedons it is sand to sandy loam and has lamellae of sandy loam to sandy clay loam. The lamellae are 0.5 to 2 inches thick and commonly are higher in chroma when dry than is the material between the lamellae. The horizon averages 10 to 18 percent clay.

The C horizon is coarse sand to loamy fine sand.

A IIC horizon is below a depth of 40 inches in some pedons. It consists of silty, stratified lake sediment with relict iron mottles; however, some pedons may be gravelly sand to loamy sand.

Perazzo Series

The Perazzo series consists of very deep, well drained, moderately slowly permeable soils on old alluvial fans. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Perazzo gravelly loam, 2 to 8 percent slopes, about 800 feet south and 2,300 feet west of the northeast corner of sec. 19, T. 13 N., R. 24 E.

A11—0 to 1 inch; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 40 percent pebbles; neutral; abrupt wavy boundary.

A12—1 to 4 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist;

massive; soft, very friable, nonsticky and slightly plastic; few very fine roots; many medium and fine vesicular pores; 10 percent pebbles; neutral; abrupt smooth boundary.

B21t—4 to 8 inches; brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 4/4) moist; massive; hard, very friable, sticky and plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 15 percent fine pebbles; common thin clay bridges; neutral; clear smooth boundary.

B22t—8 to 13 inches; brown (7.5YR 5/4) very gravelly sandy clay loam, brown (7.5YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common fine and many very fine roots; few fine and common very fine tubular pores; 60 percent pebbles; common thin clay bridges; slightly acid; clear wavy boundary.

C1—13 to 21 inches; pinkish gray (7.5YR 6/2) extremely gravelly sandy loam, brown (7.5YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; 65 percent pebbles; few coatings of lime on underside of pebbles; neutral; clear wavy boundary.

IIC2ca—21 to 26 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; 70 percent pebbles; strongly effervescent; strongly alkaline; gradual wavy boundary.

IIC3ca—26 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; 65 percent pebbles; strongly effervescent; very strongly alkaline.

Thickness of the solum is 10 to 20 inches.

The Bt horizon is clay loam or sandy clay loam that averages 20 to 30 percent clay. The horizon has 15 to 35 percent pebbles in the upper part, 45 to 60 percent pebbles in the lower part, and averages 35 to 50 percent rock fragments. Reaction is neutral or mildly alkaline.

The C horizon commonly is extremely gravelly sand or loamy sand with some strata of sandy loam. It averages 60 to 80 percent rock fragments. Reaction is neutral to very strongly alkaline.

Pirouette Series

The Pirouette series consists of shallow, well drained, moderately slowly permeable soils on hills and plateaus. These soils formed in residuum derived from andesite and basalt. Slopes are 0 to 30 percent.

Typical pedon of Pirouette extremely stony fine sandy loam, 15 to 30 percent slopes, about 850 feet north and 1,450 feet west of the southeast corner of sec. 13, T. 18 N., R. 25 E.

A11—0 to 1 inch; pale brown (10YR 6/3) extremely stony fine sandy loam, brown (10YR 4/3) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 30 percent pebbles, 20 percent cobbles, and 15 percent stones; very strongly alkaline; abrupt smooth boundary.

A12—1 to 4 inches; light brownish gray (10YR 6/2) very cobbly fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate thick and medium platy structure; slightly hard, very friable, nonsticky and slightly plastic; few fine and many very fine roots; many very fine tubular pores; 30 percent pebbles, 20 percent cobbles, and 5 percent stones; very strongly alkaline; abrupt wavy boundary.

B2t—4 to 11 inches; light brown (7.5YR 6/4) very cobbly clay loam, brown (7.5YR 5/4) moist; moderate fine and medium prismatic structure; very hard, firm, sticky and plastic; common fine and very fine roots; few fine and very fine tubular pores; 30 percent pebbles, 15 percent cobbles, and 2 percent stones; many thin and moderately thick clay bridges and common thin and moderately thick clay films on peds and lining pores; very strongly alkaline; clear wavy boundary.

B3t—11 to 14 inches; brown (7.5YR 5/4) very cobbly clay loam, brown (7.5YR 5/4) moist; weak coarse prismatic structure parting to moderate medium and fine subangular blocky; very hard, firm, sticky and very plastic; common fine and very fine roots; common fine and very fine tubular pores; 30 percent pebbles, 15 percent cobbles, and 4 percent stones; strongly alkaline; clear wavy boundary.

C1casi—14 to 18 inches; light brown (7.5YR 6/4) very cobbly silt loam, brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; common fine and very fine tubular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; silica and lime coatings on underside of rock fragments; very strongly alkaline; abrupt wavy boundary.

C2sicam—18 to 23 inches; white indurated duripan, abrupt wavy boundary.

R—23 inches; hard andesite; silica and lime coatings in fractures.

The solum is 8 to 14 inches thick. Depth to the indurated duripan is 11 to 20 inches. Bedrock is at a depth of 12 to 23 inches. Reaction is moderately alkaline or strongly alkaline.

The Bt horizon is clay loam that is with 35 to 50 percent rock fragments and averages 28 to 35 percent clay.

Pizene Series

The Pizene series consists of very deep, well drained, moderately slowly permeable soils on old alluvial fans and stream terraces. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Pizene sandy loam, 0 to 4 percent slopes, about 300 feet north and 1,050 feet east of the southwest corner of sec. 4, T. 12 N., R. 25 E.

A11—0 to 2 inches; pale brown (10YR 6/3) light sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many fine and very fine vesicular and interstitial pores; moderately alkaline; abrupt smooth boundary.

A12—2 to 6 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine and many very fine interstitial pores; moderately alkaline; abrupt wavy boundary.

B2t—6 to 14 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate coarse prismatic structure; very hard, firm, sticky and plastic; common medium roots, few fine roots, and many very fine roots; many very fine tubular pores; common thin and moderately thick clay films on peds and lining pores and many thin and moderately thick clay films bridging sand grains; very strongly alkaline; clear wavy boundary.

B3tca—14 to 21 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate fine angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; many very fine tubular pores; common thin clay films on peds, lining pores, and bridging sand grains; strongly effervescent; very strongly alkaline; clear wavy boundary.

C1ca—21 to 32 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; slightly hard, friable, slightly sticky and nonplastic; few fine and common very fine roots; many very fine tubular and interstitial pores; common medium soft masses of lime; strongly effervescent; very strongly alkaline; gradual wavy boundary.

C2—32 to 60 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many very fine tubular and interstitial pores; slightly effervescent; strongly alkaline.

The solum is 12 to 25 inches thick. Depth to free carbonates is 12 to 18 inches.

The Bt horizon is sandy clay loam or heavy sandy loam that is 18 to 25 percent clay and 15 to 35 percent exchangeable sodium. Reaction is strongly alkaline or very strongly alkaline.

The C horizon is sandy loam or fine sandy loam that is 5 to 10 percent clay. The horizon has distinct accumulations of secondary carbonates in the upper part but is less than 15 percent calcium carbonate equivalent. Reaction is moderately alkaline to very strongly alkaline.

Ravenell Series

Ravenell series consists of very shallow, well drained, slowly permeable soils on dissected pediments. These soils formed in alluvium derived from mixed igneous rocks over residuum derived from Tertiary sediment. Slopes are 8 to 30 percent.

Typical pedon of Ravenell very gravelly loam, 8 to 30 percent slopes, about 50 feet north and 2,250 feet east of the southwest corner of sec. 3, T. 7 N., R. 27 E.

A11—0 to 1 inch; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 35 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral; abrupt smooth boundary.

A12—1 to 3 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and many very fine roots; many very fine interstitial pores; 30 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral; clear smooth boundary.

B2t—3 to 7 inches; brown (7.5YR 5/4) very gravelly sandy clay, dark brown (7.5YR 4/4) moist; strong medium and fine subangular blocky structure; hard, firm, very sticky and plastic; few medium roots, common fine roots, and many very fine roots; common fine and very fine tubular pores; continuous thick and moderately thick clay films; 30 percent pebbles, 10 percent cobbles, and 1 percent stones; neutral; abrupt wavy boundary.

IICr—7 to 48 inches; soft, weathered sandstone; clay coatings, coatings of lime, and root mats along fracture planes, diminishing with depth.

Thickness of the solum and depth to the paralithic contact are 6 to 14 inches. Reaction is neutral or mildly alkaline throughout the solum.

The B2t horizon is very gravelly sandy clay or very gravelly clay that is 35 to 60 percent rock fragments, mostly pebbles, and 35 to 45 percent clay.

The IICr horizon is soft sandstone, mudstone, or conglomerate.

Ravenell Variant

Ravenell Variant consists of shallow, well drained, slowly permeable soils on plateaus. These soils formed in residuum derived from granitic bedrock. Slopes are 4 to 15 percent.

Typical pedon of Ravenell Variant gravelly sandy loam, in an area of Ravenell Variant-Devils Variant association, about 7,400 feet southwest of VABM 8620, T. 9 N., R. 26 E.

A11—0 to 2 inches; very pale brown (10YR 7/3) gravelly sandy loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and very fine interstitial pores; 20 percent pebbles; mildly alkaline; clear smooth boundary.

A12—2 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, sticky and plastic; many fine and very fine roots; many fine and very fine interstitial pores; 10 percent pebbles; mildly alkaline; clear smooth boundary.

AB—4 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and very fine roots; common fine and very fine interstitial pores and few fine tubular pores; 10 percent pebbles; mildly alkaline; clear wavy boundary.

B21t—7 to 11 inches; yellowish brown (10YR 5/4) gravelly clay, dark brown (10YR 3/3) moist; strong medium and coarse angular blocky structure; slightly hard, friable, very sticky and very plastic; common fine and medium roots; common fine tubular pores; 15 percent pebbles; many moderately thick and thick clay films on peds and lining pores; mildly alkaline; clear smooth boundary.

B22t—11 to 15 inches; yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; few fine and medium roots; common fine tubular pores; 40 percent pebbles; continuous thick clay films on peds and lining pores; mildly alkaline; clear wavy boundary.

Cr—15 inches; soft fractured granite; clay coatings extending into fractures.

The thickness of the solum and depth to the paralithic contact are 12 to 20 inches. In some pedons the bedrock is fractured. Reaction is neutral or mildly alkaline.

The Bt horizon averages gravelly clay or gravelly clay loam that is 35 to 50 percent clay. The lower part of the horizon commonly is very gravelly clay.

Rawe Series

The Rawe series consists of very deep, well drained, slowly permeable soils on smooth or dissected alluvial fans. These soils formed in gravelly alluvium derived mainly from basic igneous and granitic rocks. Slopes are 2 to 15 percent.

Typical pedon of Rawe gravelly sandy loam, 4 to 15 percent slopes, about 1,100 feet south and 1,300 feet east of the northwest corner of sec. 28, T. 13 N., R. 25 E.

A1—0 to 1 inch; light gray (10YR 7/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine vesicular pores; 25 percent pebbles; neutral; abrupt smooth boundary.

B1t—1 to 4 inches; brown (7.5YR 4/2) clay loam, brown (7.5YR 4/2) moist; moderate very fine subangular blocky structure; hard, friable, very sticky and very plastic; few very fine roots; many very fine interstitial pores; 10 percent pebbles; neutral; abrupt smooth boundary.

B2t—4 to 7 inches; brown (7.5YR 4/2) gravelly clay, brown (7.5YR 4/3) moist; strong fine subangular blocky structure; hard, friable, very sticky and very plastic; few medium and fine roots and common very fine roots; many fine and very fine tubular pores; common thin and moderately thick clay films; 20 percent pebbles; neutral; abrupt wavy boundary.

B3tca—7 to 10 inches; brown (7.5YR 4/2) gravelly clay loam, brown (7.5YR 4/2) moist; moderate fine subangular blocky structure; hard, friable, very sticky and very plastic; few medium and fine roots and common very fine roots; many fine and very fine tubular pores; 30 percent pebbles; strongly effervescent; moderately alkaline; clear wavy boundary.

IIC1ca—10 to 19 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few medium and fine roots and common very fine roots; common fine and very fine tubular pores; 55 percent pebbles; strongly effervescent; very strongly alkaline; gradual wavy boundary.

IIC2—19 to 60 inches; light brownish gray (10YR 6/2) extremely gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; 60 percent pebbles; strongly effervescent; very strongly alkaline.

The thickness of the solum is 10 to 23 inches. Reaction is neutral to moderately alkaline in the solum and moderately alkaline to very strongly alkaline in the C

horizon. Some pedons do not have carbonates in the lower part of the profile. A pebble mulch or desert pavement is common on the surface.

The Bt horizon is mostly clay or gravelly clay, but heavy clay loam is in the transitional parts. The horizon averages 40 to 50 percent clay and is 5 to 25 percent pebbles. It has common to continuous, thin to thick clay films.

The C horizon is very gravelly or extremely gravelly sandy loam or coarse sandy loam that is 35 to 80 percent angular pebbles and cobbles and 5 to 8 percent clay. Lime commonly coats rock fragments.

Rebel Series

The Rebel series consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Rebel sandy loam, 0 to 2 percent slopes, about 2,500 feet south and 1,500 feet east of the northwest corner of sec. 2, T. 11 N., R. 23 E.

Ap—0 to 5 inches; brown (10YR 5/3) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine roots; few very fine interstitial pores; neutral; clear smooth boundary.

A12—5 to 14 inches; brown (10YR 5/3) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and nonplastic; many very fine roots and common fine and medium roots; common very fine tubular and interstitial pores; neutral; clear smooth boundary.

B2—14 to 22 inches; yellowish brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common fine and very fine roots; common very fine tubular pores and few very fine interstitial pores; neutral; gradual smooth boundary.

C1ca—22 to 30 inches; yellowish brown (10YR 5/4) sandy loam, brown (10YR 4/3) moist; massive; hard, friable, nonsticky and nonplastic; few fine and very fine roots; common very fine tubular pores and many very fine interstitial pores; slightly effervescent; moderately alkaline; gradual smooth boundary.

C2ca—30 to 47 inches; yellowish brown (10YR 5/4) coarse sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, nonsticky and nonplastic; few fine and very fine roots; common very fine interstitial pores; strongly effervescent; moderately alkaline; clear smooth boundary.

C3ca—47 to 60 inches; yellowish brown (10YR 5/4) coarse sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine interstitial pores; slightly effervescent; moderately alkaline.

Thickness of the solum and depth to lime are 15 to 24 inches. The control section dominantly is sandy loam or loam with some coarse sandy loam. It has as much as 10 percent fine pebbles and has 10 to 18 percent clay. Strata that have as much as 50 percent pebbles are common in the lower part of the profile in some pedons. Reaction is neutral or mildly alkaline in the solum and mildly alkaline to strongly alkaline in the C horizon.

Reno Series

The Reno series consists of moderately deep, well drained, very slowly permeable soils on old fans and pediments. These soils formed in alluvium derived from mixed rock sources. Slopes are 2 to 15 percent.

Typical pedon of Reno gravelly sandy loam, 2 to 4 percent slopes, about 1,100 feet south and 2,100 feet west of the northeast corner of sec. 25, T. 16 N., R. 20 E.

A1—0 to 1 inch; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; few fine roots; many fine and very fine vesicular and interstitial pores; 35 percent pebbles; neutral; abrupt smooth boundary.

A2—1 to 5 inches; light gray (10YR 7/2) sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; few fine and very fine roots; many fine and very fine vesicular pores; 10 percent pebbles; neutral; clear smooth boundary.

B1—5 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and many fine tubular pores; many very thin clay coatings on sand grains; 15 percent pebbles and 5 percent cobbles; neutral; abrupt wavy boundary.

B2t—10 to 22 inches; dark yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium and fine prismatic structure; very hard, firm, very sticky and very plastic; many thin and moderately thick clay films on vertical and horizontal ped faces and lining pores; 20 percent pebbles and 5 percent cobbles; neutral; clear wavy boundary.

B3t—22 to 27 inches; yellowish brown (10YR 5/4) gravelly clay, yellowish brown (10YR 5/4) moist; strong medium and fine angular blocky structure; very hard, firm, very sticky and very plastic; many thin and moderately thick clay films on vertical and horizontal ped faces and lining pores; 30 percent pebbles and 5 percent cobbles; neutral; abrupt wavy boundary.

IIC1casim—27 to 33 inches; white and very pale brown (10YR 8/2 and 7/3) indurated duripan, brown (10YR 5/3) moist; continuous indurated laminae 1 to 2 millimeters thick; massive; extremely hard; violently effervescent; moderately alkaline; gradual wavy boundary.

IIC2casim—33 to 41 inches; white and very pale brown (10YR 8/2 and 7/3) strongly silica- and lime-cemented duripan, brown (10YR 5/3) moist; massive; very hard, very firm; violently effervescent; strongly alkaline; gradual wavy boundary.

IIC3ca—41 to 60 inches; brown (10YR 5/3) extremely gravelly loamy sand, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; many very fine interstitial pores; 50 percent gravel and 15 percent stones; moderately alkaline.

Thickness of the solum is 20 to 36 inches. Depth to the indurated duripan is 20 to 40 inches. Reaction above the duripan is slightly acid to mildly alkaline, and it is mildly alkaline or moderately alkaline below the duripan.

The Bt horizon is sandy clay, clay, or gravelly clay that averages 35 to 60 percent clay. The horizon contains 10 to 35 percent pebbles and cobbles.

The duripan is alternating layers of indurated and strongly cemented material in most pedons.

Reno Variant

The Reno Variant consists of shallow, well drained, moderately permeable soils on mountainsides. These soils formed in colluvium derived mainly from andesitic rocks with some influence of ashy loess. Slopes are 30 to 50 percent.

Typical pedon of Reno Variant very stony sandy loam, in an area of Old Camp-Reno Variant-Hyloc association, 1,600 feet north and 2,850 feet east of the southwest corner of sec. 1, T. 7 N., R. 26 E.

A11—0 to 4 inches; brown (10YR 5/3) very stony sandy loam, dark brown (10YR 3/3) moist; weak medium and coarse granular structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; many very fine interstitial pores; 5 percent pebbles, 15 percent cobbles, and 20 percent stones; neutral; clear smooth boundary.

A12—4 to 11 inches; light brownish gray (10YR 6/2) stony loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots, common fine roots, and many very fine roots; many very fine interstitial pores and few fine tubular pores; 10 percent pebbles, 5 percent cobbles, and 10 percent stones; neutral; clear smooth boundary.

B2t—11 to 18 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; moderate medium and fine subangular blocky structure; very hard, friable, sticky and plastic; common medium and coarse roots and many fine and very fine roots; few fine and many very fine tubular pores; common thin clay films on peds and lining pores; 5 percent pebbles, 5 percent cobbles, and 1 percent stones; neutral; abrupt smooth boundary.

C1sicam—18 to 24 inches; light gray (10YR 7/1) strongly silica- and lime-cemented duripan; discontinuous thin indurated laminae, abrupt wavy boundary.

R—24 inches; hard andesite; silica and lime coatings in fractures.

Thickness of the solum and depth to the duripan are 15 to 20 inches. The duripan is 2 to 16 inches thick. Depth to unweathered bedrock is 20 to 36 inches. The B2t horizon is 20 to 27 percent clay.

Risue Series

The Risue series consists of shallow, well drained, slowly permeable soils on old dissected alluvial fans. These soils formed in alluvium derived from basic igneous rock. Slopes are 0 to 15 percent.

Typical pedon of Risue extremely stony loam, 8 to 15 percent slopes, about 400 feet north and 500 feet east of the southwest corner of sec. 16, T. 18 N., R. 24 E.

A1—0 to 1 inch; light gray (10YR 7/2) extremely stony loam, grayish brown (10YR 5/2) moist; weak medium platy structure; soft, friable, slightly sticky and slightly plastic; few very fine roots; many fine and very fine vesicular pores; 70 percent pebbles, cobbles, and stones; neutral; abrupt smooth boundary.

B21t—1 to 4 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; strong fine subangular blocky structure; slightly hard, firm, very sticky and very plastic; few medium and fine roots and common very fine roots; many very fine tubular pores; continuous thin clay films on peds; neutral; clear smooth boundary.

B22t—4 to 14 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few medium and fine roots and common very fine roots; few fine and many very tubular pores; continuous pressure cutans on peds; continuous thin clay films lining pores; neutral; abrupt smooth boundary.

B3tca—14 to 16 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, sticky and plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 20 percent

pebbles; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C1sicam—16 to 33 inches; white (10YR 8/2) indurated duripan, pale brown (10YR 6/3) moist; massive; extremely hard, extremely firm; violently effervescent; moderately alkaline; abrupt smooth boundary.

C2sicam—33 to 60 inches; white (10YR 8/2) alternating layers of weakly silica-cemented to strongly silica-cemented very gravelly sandy loam; very hard, firm; violently effervescent; moderately alkaline.

Thickness of the solum and depth to the duripan are 10 to 20 inches.

Reaction of the A horizon is neutral or mildly alkaline.

The Bt horizon is clay, sandy clay, or clay loam that is 0 to 20 percent pebbles and 35 to 50 percent clay. Reaction commonly is neutral, but it is moderately alkaline in the lower part in some pedons.

The duripan is 10 to 24 inches thick. The material below the duripan is alternating layers of noncemented to strongly cemented material.

Roloc Series

The Roloc series consists of shallow, well drained, moderately permeable soils on mountainsides. These soils formed in residuum derived from granitic bedrock. Slopes are 15 to 75 percent.

Typical pedon of Roloc gravelly sandy loam, 15 to 50 percent slopes, in an area of Trid-Roloc-Drit association; about 1,200 feet east and 1,600 feet north of the southwest corner of sec. 12, T. 14 N., R. 22 E.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine tubular pores; 15 percent fine pebbles; neutral; abrupt smooth boundary.

A12—2 to 8 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine tubular pores; 15 percent fine pebbles; neutral; abrupt smooth boundary.

A3—8 to 11 inches; brown (10YR 5/3) very gravelly coarse sandy loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; few very fine and medium tubular pores; 35 percent fine pebbles; neutral; abrupt smooth boundary.

B2t—11 to 14 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, dark brown (10YR 4/3) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine and few medium tubular pores; common thin clay films coating sand grains; 45 percent fine pebbles; neutral; abrupt smooth boundary.

B3t—14 to 17 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium roots; common very fine tubular pores; few thin clay films coating sand grains and lining pores; 40 percent fine pebbles; abrupt wavy boundary.

Cr—17 to 28 inches; weathered granitic bedrock; clay films coating fracture planes.

The mollic epipedon is 7 to 12 inches thick. Thickness of the solum and depth to a paralithic contact are 14 to 20 inches. Reaction is slightly acid or neutral.

The Bt horizon has 35 to 50 percent fine gravel and 10 to 18 percent clay.

Rose Creek Series

The Rose Creek series consists of very deep, poorly drained, moderately rapidly permeable soils on narrow flood plains. These soils formed in stratified loamy and sandy alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Rose Creek loam, about 2,110 feet west and 1,580 feet south of the northeast corner of sec. 26, T. 16 N., R. 21 E.

Ap—0 to 8 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common fine interstitial pores and few fine tubular pores; neutral; abrupt wavy boundary.

A1—8 to 18 inches; grayish brown (10YR 5/2) fine sandy loam, dark brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores and many fine tubular pores; neutral; abrupt wavy boundary.

C1—18 to 32 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; neutral; abrupt smooth boundary.

IIC2—32 to 40 inches; light gray (2.5Y 7/2) silt loam, light olive brown (2.5Y 5/4) moist; common fine distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) iron mottles; massive; slightly hard, very friable, nonsticky and slightly plastic; few

very fine roots; few fine tubular pores; neutral; clear wavy boundary.

IIC3—40 to 60 inches; light brownish gray (2.5Y 6/2) gravelly loamy sand, olive brown (2.5Y 4/4) moist; common fine distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) iron mottles; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine interstitial pores; 20 percent fine pebbles; neutral.

The mollic epipedon is 10 to 18 inches thick. The control section is stratified gravelly sand to silt loam, but it averages sandy loam, fine sandy loam, or loam. Content of clay averages 10 to 18 percent. These soils commonly are noncalcareous throughout the profile but are slightly calcareous in the substratum in some pedons. Reaction is neutral or mildly alkaline.

A IIC2 horizon is in some pedons. Gravelly sand, loamy sand, and coarse sand are within a depth of 35 inches of the surface in some pedons.

Rowel Series

The Rowel series consists of shallow, well drained, slowly permeable soils on hills. These soils formed in residuum derived from basic igneous rocks. Slopes are 8 to 50 percent.

Typical pedon of Rowel very cobbly sandy loam, 8 to 30 percent slopes, in an area of Rowel association, about 800 feet south and 1,200 feet east of the northwest corner of sec. 13, T. 7 N., R. 27 E.

A11—0 to 1 inch; light brownish gray (10YR 6/2) extremely cobbly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 45 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

A12—1 to 6 inches; light brownish gray (10YR 6/2) very cobbly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; many fine vesicular pores; 30 percent pebbles, 20 percent cobbles, and 5 percent stones; neutral; abrupt wavy boundary.

B2t—6 to 14 inches; brown (7.5YR 5/4) extremely cobbly clay, brown (7.5YR 5/4) moist; strong medium and fine angular blocky structure; hard, very firm, very sticky and very plastic; common medium, fine, and very fine roots; few fine and common very fine pores; shiny smooth pressure faces; 20 percent pebbles, 40 percent cobbles, and 5 percent stones; mildly alkaline; abrupt wavy boundary.

R—14 to 20 inches; hard, fractured andesite; clay coatings and roots in fractures.

Thickness of solum and depth to bedrock are 10 to 14 inches. The profile averages 50 to 80 percent rock fragments, mostly cobbles, and 25 to 35 percent clay.

The B2t horizon has 40 to 55 percent clay in the fine earth fraction.

Rusty Series

The Rusty series consists of very deep, well drained, moderately slowly permeable soils on lake plains. These soils formed in lacustrine sediment reworked by wind. Slopes are 0 to 2 percent.

Typical pedon of Rusty sand, 0 to 2 percent slopes, about 200 feet south and 300 feet east of the northwest corner of sec. 6, T. 17 N., R. 25 E.

A11—0 to 3 inches; pale brown (10YR 6/3) sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many fine interstitial pores; moderately alkaline; abrupt smooth boundary.

A12—3 to 9 inches; light gray (10YR 7/1) loamy sand, brown (10YR 4/3) moist; moderate medium and thick platy structure; slightly hard, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine and fine interstitial pores; many fine vesicular pores in the lower part; moderately alkaline; abrupt irregular boundary.

IIB21t—9 to 13 inches; pale brown (10YR 6/3) sandy clay loam, dark yellowish brown (10YR 4/4) moist; strong medium and coarse columnar structure; hard, very friable, sticky and plastic; many very fine and fine roots and few medium roots; common fine tubular pores; common thin clay bridges and coatings on mineral grains; strongly alkaline; clear wavy boundary.

IIB22tca—13 to 22 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; strong medium angular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; many fine tubular pores; common thin clay coatings on mineral grains; many thin silt coatings on mineral grains; violently effervescent; common fine soft masses and filaments of lime; strongly alkaline; clear smooth boundary.

IIIC1—22 to 34 inches; very pale brown (10YR 7/3) stratified fine sandy loam and silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few fine and medium roots; common fine tubular pores; slightly effervescent; strongly alkaline; abrupt wavy boundary.

IVC2—34 to 40 inches; uncoated sand; many relict mottles that are strong brown (7.5YR 5/8 and 5/6) when dry or moist; single grain; loose, nonsticky and nonplastic; common fine and few medium roots;

many fine interstitial pores; slightly effervescent; strongly alkaline; clear wavy boundary.

VC3—40 to 48 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; many relict mottles that are strong brown (7.5YR 5/8 and 5/6) when dry or moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few fine roots; common fine tubular pores and few fine vesicular pores; slightly effervescent; strongly alkaline; clear smooth boundary.

VIC4—48 to 60 inches; uncoated sand; many relict mottles that are strong brown (7.5YR 5/8 and 5/6) when dry or moist; single grain; loose, nonsticky and nonplastic; many fine and few medium roots; many very fine and fine interstitial pores; slightly effervescent; moderately alkaline.

Thickness of the solum is 20 to 34 inches.

Reaction of the A horizon is neutral to moderately alkaline.

The B21t horizon has prismatic or columnar structure in the upper part and angular blocky structure in the lower part. The horizon is sandy clay loam or loam that is 20 to 28 percent clay. Reaction is strongly alkaline or very strongly alkaline.

The C horizon is stratified lacustrine sand to silt loam with clayey material below a depth of 40 inches in some pedons. The horizon is mildly alkaline to strongly alkaline and is noneffervescent or slightly effervescent.

Sagouspe Series

The Sagouspe series consists of very deep, somewhat poorly drained, rapidly permeable soils on low stream terraces and flood plains. These soils formed in sandy alluvium derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Sagouspe sandy loam, about 700 feet north and 1,550 feet east of the southwest corner of sec. 12, T. 13 N., R. 25 E.

A1—0 to 2 inches; light gray (10YR 7/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many saltgrass rhizomes; common very fine tubular pores; slightly effervescent; strongly alkaline; abrupt smooth boundary.

C1—2 to 8 inches; light brown (10YR 6/3) sandy loam, grayish brown (10YR 5/2) moist; common large faint brown (10YR 5/3) iron mottles; massive; slightly hard, very friable, nonsticky and nonplastic; common fine and many very fine roots; few fine and many very fine tubular pores; strongly effervescent; strongly alkaline; abrupt wavy boundary.

C2—8 to 16 inches; light brownish gray (10YR 6/2) sandy loam, grayish brown (10YR 5/2) moist; few large faint brown (10YR 5/3) mottles; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; slightly effervescent; strongly alkaline; clear wavy boundary.

C3—16 to 22 inches; light brownish gray (10YR 6/2) loamy sand, grayish brown (10YR 5/2) moist; few large faint brown (10YR 5/3) mottles; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and common very fine roots; many very fine interstitial pores; slightly effervescent; very strongly alkaline; abrupt wavy boundary.

IIC4ca—22 to 29 inches; variegated light brownish gray (10YR 6/2) and pale brown (10YR 6/3) loamy sand with finely stratified layers of sandy loam 2 to 30 millimeters thick, grayish brown (10YR 5/2) and brown (10YR 5/3) moist; many medium distinct dark brown (10YR 4/3) iron mottles; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; many medium slightly hard and hard lime nodules; violently effervescent; very strongly alkaline; abrupt wavy boundary.

IIIC5—29 to 39 inches; light brownish gray (10YR 6/2) loamy sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; very strongly alkaline; clear wavy boundary.

IIIC6—39 to 64 inches; light brownish gray (10YR 6/2) sand, grayish brown (10YR 5/3) moist; common coarse faint brown (10YR 5/3) iron mottles; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; moderately alkaline.

The control section dominantly is stratified sand or loamy sand but has minor strata of loamy material, including clay loam, silty clay loam, or loam in some pedons. The control section has 0 to 10 percent clay. Mottles are at a depth of 6 to 40 inches in most pedons that are not disturbed. Reaction is neutral to very strongly alkaline.

Saralegui Series

The Saralegui series consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans and lake terraces. These soils formed in alluvium derived mainly from granitic rocks. Slopes are 0 to 15 percent.

Typical pedon of Saralegui loamy sand, 4 to 8 percent slopes, about 1,740 feet north and 1,310 feet west of the southeast corner of sec. 12, T. 11 N., R. 23 E.

A11—0 to 2 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many very fine and fine interstitial pores; neutral; abrupt wavy boundary.

A12—2 to 5 inches; grayish brown (10YR 5/2) light loamy sand, dark brown (10YR 3/3) moist; weak thin and medium platy structure; slightly hard, very friable, nonsticky and nonplastic; common fine roots; many very fine and fine interstitial pores; slightly acid; abrupt wavy boundary.

B1t—5 to 12 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine roots; many fine and very fine interstitial pores; few thin clay coatings on sand grains; neutral; abrupt wavy boundary.

B21t—12 to 23 inches; yellowish brown (10YR 5/4) heavy sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; very hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; many fine and very fine interstitial pores; many thin clay coatings on sand grains and few clay bridges; neutral; clear smooth boundary.

B22t—23 to 32 inches; yellowish brown (10YR 5/4) sandy loam, brown (10YR 4/3) moist; massive; hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; many thin clay coatings on sand grains and few clay bridges; neutral; clear smooth boundary.

B3t—32 to 39 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine and fine interstitial pores; many thin clay coatings on sand grains and few thin clay bridges; neutral; clear smooth boundary.

C1—39 to 51 inches; brown (10YR 5/3) sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many fine and very fine interstitial pores; neutral; gradual smooth boundary.

C2—51 to 64 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many fine and very fine interstitial pores; neutral.

The control section averages 10 to 15 percent clay and 5 to 20 percent rock fragments. Reaction is slightly acid or neutral in the surface layer, and it commonly increases to strongly alkaline below the surface layer.

Saralegui Variant

Saralegui Variant consists of very deep, well drained, moderately slowly permeable soils on lake terraces and alluvial fans. These soils formed in wind-worked alluvium over lake sediment derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Saralegui Variant loamy sand, about 1,000 feet north of the southeast corner of sec. 11, T. 12 N., R. 23 E.

A11—0 to 1 inch; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; moderately alkaline; abrupt smooth boundary.

A12—1 to 4 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; moderately alkaline; clear smooth boundary.

A2—4 to 10 inches; light gray (10YR 7/1) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; moderately alkaline; gradual smooth boundary.

B21t—10 to 13 inches; yellowish brown (10YR 5/4) heavy sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few fine roots; common very fine interstitial pores; common thin clay bridges; strongly alkaline; abrupt smooth boundary.

B22t—13 to 20 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; common very fine interstitial pores; common thin clay bridges and common thin clay films lining pores; strongly alkaline; abrupt smooth boundary.

IIC1—20 to 28 inches; brown (10YR 5/3) clay loam, olive brown (2.5Y 4/4) moist; weak medium and fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; few very fine roots; common very fine interstitial pores; many thin clay films on peds and lining pores; very strongly alkaline; abrupt smooth boundary.

IIC2ca—28 to 38 inches; light gray (2.5Y 7/2) silty clay loam, light olive brown (2.5Y 5/4) moist; common fine distinct white (10YR 8/1) lime mottles; massive; soft, very friable, slightly sticky and plastic; very strongly alkaline; clear smooth boundary.

IIIC3—38 to 42 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; massive; loose, nonsticky and nonplastic; many very fine interstitial pores; moderately alkaline; clear wavy boundary.

IIIC4—42 to 48 inches; light gray (10YR 6/1) sandy loam, brown (10YR 5/3) moist; white (10YR 8/2) lime laminae; massive; hard, friable, slightly sticky and slightly plastic; moderately alkaline; clear smooth boundary.

IIIC5—48 to 68 inches; yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; moderately alkaline.

The thickness of the solum and depth to the unconformable sediment are 18 to 36 inches. A fine gravel pavement commonly is on the surface. Reaction of the A horizon is mildly aklaline or moderately alkaline.

The B2t horizon is 8 to 15 percent clay and is moderately alkaline or strongly alkaline. The C horizon is stratified silty clay loam or clay loam in the upper part and loam to sand in the lower part. Reaction of the C horizon is strongly alkaline or very strongly alkaline.

Shoken Series

The Shoken series consists of very shallow, well drained, rapidly permeable soils on hills and mountains. These soils formed in residuum derived from granite. Slopes are 30 to 75 percent.

Typical pedon of Shoken very gravelly coarse sandy loam, 50 to 75 percent slopes, in an area of Shoken-Rock outcrop association; about 2,050 feet north and 1,250 feet east of the southwest corner of sec. 33, T. 8 N., R. 27 E.

A1—0 to 1 inch; grayish brown (10YR 5/2) very gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 40 percent fine pebbles; neutral; abrupt smooth boundary.
C1—1 to 5 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; many very fine interstitial pores; 40 percent fine pebbles; neutral; abrupt wavy boundary.
Cr—5 to 25 inches; soft, weathered granite; gradual wavy boundary.
R—25 inches; hard granite.

Thickness of the soil and depth to the paralithic contact are 3 to 10 inches. Depth to the lithic contact is 20 to 40 inches. The profile averages very gravelly coarse sandy loam that is 35 to 50 percent fine pebbles and 2 to 8 percent clay. Roots penetrate the soft, weathered bedrock to a depth of several inches in some pedons.

Shree Series

The Shree series consists of very deep, well drained, moderately slowly permeable soils on the upper part of alluvial fans. These soils formed in gravelly alluvium derived from mixed rock sources. Slopes are 4 to 8 percent.

Typical pedon of Shree very gravelly loam, 4 to 8 percent slopes, 350 feet south and 1,900 feet east of the northwest corner of sec. 7, T. 7 N., R. 20 E.

A11—0 to 3 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many fine and very fine interstitial pores; 40 percent pebbles and 5 percent cobbles; neutral; abrupt smooth boundary.
A12—3 to 10 inches; grayish brown (10YR 5/2) very gravelly heavy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few coarse, fine, and very fine roots and common medium roots; many very fine and fine interstitial pores; 30 percent pebbles and 10 percent cobbles; neutral; clear smooth boundary.
B1t—10 to 13 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common coarse and few fine roots; common fine and very fine interstitial pores and few medium tubular pores; few thin clay films on peds; 35 percent gravel and 15 percent cobbles; neutral; clear smooth boundary.
B2t—13 to 21 inches; light yellowish brown (10YR 6/4) extremely gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, very sticky and very plastic; few medium and fine roots; common fine and very fine interstitial pores and few medium tubular pores; common thin and moderately thick clay films on peds and lining pores; 45 percent pebbles and 15 percent cobbles; neutral; clear smooth boundary.
B3t—21 to 26 inches; pale brown (10YR 6/3) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; few medium and fine roots; common fine and very fine interstitial pores and few medium tubular pores; few thin clay films on peds and lining pores; 50 percent pebbles and 15 percent cobbles; neutral; clear smooth boundary.
C1—26 to 60 inches; very pale brown (10YR 7/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, friable, nonsticky and nonplastic; few medium roots; 45 percent pebbles and 15 percent cobbles; mildly alkaline.

The mollic epipedon is 10 to 15 inches thick. The solum is 24 to 30 inches thick.

The A horizon is slightly acid to mildly alkaline.

The Bt horizon is very gravelly or extremely gravelly clay loam or sandy clay loam that averages 27 to 35 percent clay and 40 to 65 percent rock fragments, mostly pebbles. Reaction is neutral or mildly alkaline.

Singatse Series

The Singatse series consists of very shallow, somewhat excessively drained, moderately permeable soils on hills and low mountains. These soils formed in residuum and some colluvium derived from andesite and granite. Slopes are 8 to 75 percent.

Typical pedon of Singatse very gravelly loam, 30 to 75 percent slopes, in an area of Singatse-Theon association; about 2,100 feet south and 850 feet east of the northwest corner of sec. 32, T. 13 N., R. 25 E.

A1—0 to 2 inches; light brownish gray (2.5Y 6/2) very gravelly loam, grayish brown (2.5Y 5/2) moist; massive; soft, friable, nonsticky and nonplastic; many fine and very fine interstitial and vesicular pores; 55 percent pebbles; strongly effervescent; strongly alkaline; abrupt wavy boundary.

C1—2 to 6 inches; light gray (2.5Y 7/2) very gravelly loam, grayish brown (2.5Y 5/2) moist; massive; soft, friable, nonsticky and nonplastic; common fine and many very fine roots; few fine and many very fine interstitial pores; 55 percent pebbles; strongly effervescent; strongly alkaline; abrupt wavy boundary.

Cr—6 to 12 inches; volcanic saprolite; very hard, extremely firm; thin coatings of lime and matted roots along cracks; clear irregular boundary.

R—12 inches; hard andesite; few roots in fractures.

Depth to the paralithic contact is 4 to 12 inches, and depth to the lithic contact is 10 to 20 inches. The control section to the paralithic contact averages very gravelly loam or very gravelly sandy loam that is 5 to 15 percent clay and 35 to 60 percent rock fragments, mostly pebbles. Reaction is moderately alkaline or strongly alkaline.

Smedley Series

The Smedley series consists of shallow, well drained, slowly permeable soils on alluvial fans. These soils formed in alluvium derived from mixed igneous rocks. Slopes are 2 to 30 percent.

Typical pedon of Smedley very gravelly sandy loam, 2 to 4 percent slopes, about 700 feet north and 800 feet west of the southeast corner of sec. 13, T. 8 N., R. 27 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 30 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral; abrupt smooth boundary.

B1t—2 to 4 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and many very fine tubular pores; many clay bridges; 20 percent pebbles, 10 percent cobbles, and 2 percent stones; mildly alkaline; abrupt smooth boundary.

B21t—4 to 8 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; few medium and coarse pores and many fine and very fine pores; continuous clay bridges and clay coatings on peds and lining pores; 15 percent pebbles, 10 percent cobbles, and 2 percent stones; mildly alkaline; clear wavy boundary.

B22t—8 to 13 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium and coarse subangular blocky structure; hard, firm, very sticky and very plastic; few medium roots, common fine roots, and many very fine roots; few fine and many very fine pores; continuous clay bridges and common thin and moderately thick clay films on peds and lining pores; 15 percent pebbles, 10 percent cobbles, and 2 percent stones; mildly alkaline; clear wavy boundary.

B3tca—13 to 18 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots, common fine roots, and many very fine roots; few fine and common very fine tubular pores; 25 percent pebbles, 15 percent cobbles, and 2 percent stones; few fine lime filaments and soft masses; slightly effervescent; moderately alkaline; clear wavy boundary.

C1casim—18 to 43 inches; white (10YR 8/2), strongly cemented duripan; very hard; violently effervescent; strongly alkaline; diffuse wavy boundary.

C2—43 to 64 inches; light gray (10YR 7/2) extremely gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; 50 percent pebbles, 15 percent cobbles, and 2 percent stones; violently effervescent; strongly alkaline.

Thickness of the solum and depth to the duripan are 14 to 20 inches. Reaction of the solum is neutral to moderately alkaline, commonly decreasing in alkalinity with depth.

The Bt horizon dominantly is gravelly or cobbly clay loam or gravelly clay that is 15 to 35 percent rock fragments and 35 to 45 percent clay. Thin strata of gravelly or very gravelly loam are present in some pedons.

The duripan is hard to extremely hard and has discontinuous, indurated laminae in some pedons. In some pedons weakly consolidated Tertiary sandstone or mudstone is below a depth of 40 inches.

Springmeyer Series

The Springmeyer series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans. These soils formed in mixed alluvium. Slopes are 0 to 4 percent.

Typical pedon of Springmeyer sandy loam, 0 to 4 percent slopes; 1.75 miles northeast of Rickey Mine, 2,500 feet east and 1,500 feet south of projected northwest corner of sec. 10, T. 8 N., R. 24 E.

A1—0 to 3 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thick and medium platy structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many fine and very fine vesicular pores; 5 percent pebbles; neutral; clear smooth boundary.

A12—3 to 10 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and many fine roots; common fine tubular pores; 5 percent pebbles; neutral; clear wavy boundary.

B1t—10 to 17 inches; brown (10YR 5/3) sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse and medium subangular blocky structure; hard, firm, sticky and plastic; many medium, fine, and very fine roots; common medium and fine tubular pores; common moderately thick clay films on peds and lining pores; 5 percent pebbles; neutral; clear wavy boundary.

B2t—17 to 23 inches; brown (10YR 5/3) sandy clay, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few fine roots; few fine tubular pores; many moderately thick clay films on peds and lining pores; 10 percent pebbles; neutral; clear smooth boundary.

B3t—23 to 34 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; massive; hard, firm, sticky and plastic; few fine roots; few fine tubular and interstitial pores; common thin clay films bridging mineral grains; 10 percent pebbles; neutral; gradual smooth boundary.

C—34 to 60 inches; yellowish brown (10YR 5/4) sandy loam, dark brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine interstitial pores; 10 percent pebbles; neutral.

The mollic epipedon is 10 to 19 inches thick. Thickness of the solum commonly is 20 to 40 inches, but it is 60 inches or more in some pedons. Reaction of the solum is slightly acid or neutral.

The Bt horizon dominantly is sandy clay loam but includes strata of sandy clay. It averages 25 to 35 percent clay and has 5 to 25 percent rock fragments.

The C horizon is very gravelly sandy clay loam to loamy sand and has as much as 70 percent rock fragments in some pedons. Reaction is neutral to moderately alkaline.

Stucky Series

The Stucky series consists of very deep, well drained, moderately slowly permeable soils on old alluvial fans. These soils formed in alluvium derived mainly from granitic rock. Slopes are 2 to 30 percent.

Typical pedon of Stucky extremely cobbly sandy loam, 8 to 15 percent slopes, about 2,150 feet west and 1,550 feet south of the northeast corner of sec. 33, T. 13 N., R. 23 E.

A11—0 to 2 inches; grayish brown (10YR 5/2) extremely cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; 30 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

A12—2 to 6 inches; light brownish gray (10YR 6/2) extremely cobbly loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine roots; many fine and very fine interstitial pores and common fine tubular pores; 25 percent pebbles, 30 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

B1t—6 to 10 inches; yellowish brown (10YR 5/4) extremely cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium roots and common fine and very fine roots; many fine and very fine interstitial pores and common fine tubular pores; many thin clay bridges between sand grains and few clay films lining pores; 30 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral; abrupt wavy boundary.

B2t—10 to 20 inches; yellowish brown (10YR 5/4) extremely cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium subangular blocky structure; hard, friable, sticky and plastic; few medium, fine, and very fine roots; common fine and many very fine tubular pores; continuous clay films on ped faces and lining pores; 25 percent pebbles, 25 percent cobbles, and 10 percent stones; neutral; clear wavy boundary.

C1—20 to 35 inches; pale brown (10YR 6/3) very stony sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine and very fine roots; few fine and common very fine tubular pores; 20 percent pebbles, 10 percent cobbles, and 15 percent stones; mildly alkaline; clear wavy boundary.

B2tb—35 to 44 inches; brown (7.5YR 5/4) very stony clay loam, dark brown (7.5YR 4/4) moist; weak

medium and coarse subangular blocky structure; very hard, friable, sticky and plastic; few fine and very fine roots; few fine and common very fine tubular pores; continuous thin clay films on peds and lining pores; 20 percent pebbles, 10 percent cobbles, and 15 percent stones; mildly alkaline; clear wavy boundary.

B3tb—44 to 49 inches; yellowish brown (10YR 5/4) extremely stony loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; few fine and common very fine tubular pores; common thin clay films on peds and lining pores; 30 percent pebbles, 20 percent cobbles, and 20 percent stones; mildly alkaline; clear wavy boundary.

C2ca—49 to 60 inches; light yellowish brown (10YR 6/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; few fine and many very fine interstitial pores; 40 percent pebbles, 20 percent cobbles, and 10 percent stones; slightly effervescent to strongly effervescent; moderately alkaline.

The solum is 20 to 30 inches thick.

The Bt horizon has 50 to 70 percent rock fragments, mainly cobbles and stones, and averages 27 to 35 percent clay.

The C horizon has 40 to 75 percent rock fragments, mainly cobbles and stones. Reaction is neutral to moderately alkaline. A buried Bt horizon is common in most pedons.

Surgem Series

The Surgem series consists of moderately deep, well drained, slowly permeable soils on convex uplands. These soils formed in residuum derived from granodiorite. Slopes are 30 to 50 percent.

Typical pedon of Surgem extremely stony sandy loam, in an area of Surgem-Olac-Cagle association, about 1,450 feet north and 500 feet east of the southwest corner of sec. 9, T. 12 N., R. 23 E.

A11—0 to 1 inch; brown (10YR 5/3) extremely stony sandy loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 35 percent pebbles, 25 percent cobbles, and 30 percent stones; slightly acid; abrupt smooth boundary.

A12—1 to 4 inches; light brownish gray (10YR 6/2) extremely stony sandy loam, brown (10YR 4/3) moist; moderate medium and thin platy structure; slightly hard, very friable, nonsticky and nonplastic; few medium and many very fine roots; many fine and very fine vesicular pores; 35 percent pebbles, 20 percent cobbles, and 20 percent stones; slightly acid; clear smooth boundary.

B1t—4 to 6 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; hard, friable, sticky and slightly plastic; common medium and fine roots and many very fine roots; many fine and very fine tubular pores; 45 percent pebbles and 10 percent cobbles; neutral; clear smooth boundary.

B21t—6 to 10 inches; yellowish brown (10YR 5/4) extremely gravelly clay, dark yellowish brown (10YR 3/4) moist; strong fine subangular blocky structure; very hard, firm, very sticky and very plastic; few fine and many very fine roots; many very fine tubular pores; 50 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

B22t—10 to 22 inches; brown (7.5YR 4/4) extremely gravelly clay, brown (7.5YR 4/4) moist; strong fine angular blocky structure; very hard, firm, very sticky and very plastic; few fine and very fine roots; many very fine tubular pores; 60 percent pebbles and 20 percent cobbles; neutral, gradual wavy boundary.

R—22 inches; fractured granitic bedrock; clay coatings in fractures.

Thickness of the solum and depth to bedrock are 20 to 30 inches.

Reaction of the A horizon is slightly acid or neutral.

The B2t horizon dominantly is extremely gravelly sandy clay or clay and averages 35 to 50 percent clay and 50 to 80 percent rock fragments, mostly pebbles, and some cobbles and stones. Reaction is slightly acid to mildly alkaline.

Tenpin Series

The Tenpin series consists of very deep, well drained, slowly permeable soils on old alluvial fans and remnant dissected fans. These soils formed in alluvium derived mainly from pyroclastic and granitic rocks. Slopes are 4 to 8 percent.

Typical pedon of Tenpin very gravelly loam, in an area of Tenpin-Shree association, about 900 feet south and 400 feet west of the northwest corner of sec. 6, T. 7 N., R. 25 E.

A11—0 to 1 inch; brown (10YR 5/3) extremely gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine interstitial pores; 70 percent pebbles, 5 percent cobbles, and 5 percent stones; slightly acid; abrupt smooth boundary.

A12—1 to 4 inches; light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine and many very fine roots; many

very fine and fine vesicular pores; 35 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

A3—4 to 7 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots and many fine and very fine roots; many fine and very fine tubular pores; 40 percent pebbles, 10 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

B1—7 to 11 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium roots and common fine and very fine roots; many fine and very fine tubular pores; 40 percent pebbles, 10 percent cobbles, and 5 percent stones; neutral; abrupt smooth boundary.

B21t—11 to 21 inches; brown (7.5YR 5/4) extremely gravelly clay, dark brown (7.5YR 4/4) moist; moderate medium and fine angular and subangular blocky structure; very hard, firm, very sticky and very plastic; few fine and common very fine roots; common fine and very fine tubular pores; few thick clay films and many thin and moderately thick clay films on peds and lining pores; 50 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

B22t—21 to 27 inches; light brown (7.5YR 6/4) extremely cobbly sandy clay, brown (7.5YR 5/4) moist; weak medium and coarse subangular blocky structure; very hard, friable, very sticky and very plastic; few very fine roots; few fine and common very fine tubular pores; continuous thin and moderately thick clay films on peds and lining pores; 40 percent pebbles, 20 percent cobbles, and 10 percent stones; slightly acid; clear smooth boundary.

B3t—27 to 33 inches; light yellowish brown (10YR 6/4) extremely cobbly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; common thin clay bridges; 40 percent pebbles, 15 percent cobbles, and 15 percent stones; neutral; gradual smooth boundary.

C1—33 to 60 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few fine and many very fine interstitial pores; 40 percent pebbles, 20 percent cobbles, and 15 percent stones; neutral.

Thickness of the solum is 30 to 40 inches. Reaction is slightly acid or neutral throughout the profile.

The Bt horizon dominantly is extremely gravelly clay or extremely cobbly sandy clay that is 60 to 75 percent rock fragments. It includes strata of loam or sandy loam that is 50 to 75 percent rock fragments. The horizon averages 35 to 45 percent clay.

The C horizon is extremely cobbly sandy loam or extremely cobbly loam that is 60 to 75 percent rock fragments.

Theon Series

The Theon series consists of shallow and very shallow, well drained, moderately slowly permeable soils on foothills and low mountains. These soils formed in residuum derived mainly from andesite and rhyolite. Slopes are 8 to 75 percent.

Typical pedon of Theon very gravelly loam, 30 to 50 percent slopes, in an area of Theon-Olac association; about 1,385 feet north and 1,215 feet west of the southeast corner of sec. 13, T. 13 N., R. 24 E.

A1—0 to 2 inches; pale brown (10YR 6/3) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; many fine and very fine interstitial pores; 50 percent pebbles, 5 percent cobbles, and 1 percent stones; moderately alkaline; abrupt smooth boundary.

B1t—2 to 6 inches; brown (7.5YR 4/4) extremely gravelly loam; dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium roots and many fine and very fine roots; many fine and very fine interstitial pores; many very thin clay films on peds and lining pores; 60 percent pebbles, 5 percent cobbles, and 1 percent stones; moderately alkaline; abrupt smooth boundary.

B2t—6 to 11 inches; reddish brown (5YR 4/4) very gravelly clay loam, reddish brown (5YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common medium, fine, and very fine roots; common fine and very fine tubular pores; many thin and moderately thick clay films on peds and lining pores; 50 percent pebbles, 1 percent cobbles, and 1 percent stones; moderately alkaline; abrupt wavy boundary.

Cr—11 to 16 inches; weathered andesite; root mats and clay coatings in fractures; gradual wavy boundary.

R—16 inches; unweathered andesite.

Thickness of the solum and depth to the paralithic contact are 8 to 14 inches. Unweathered bedrock is at a depth of 10 to 20 inches.

Reaction of the A horizon is neutral to moderately alkaline.

The Bt horizon averages clay loam, sandy clay loam, or loam that is 35 to 60 percent rock fragments, mostly pebbles, and 25 to 35 percent clay. Reaction is neutral to strongly alkaline.

The weathered bedrock commonly has discontinuous coatings of lime and silica along weak fracture planes.

Ticino Series

The Ticino series consists of moderately deep, well drained, moderately permeable soils on hillsides and mountainsides. These soils formed in residuum derived mainly from rhyolite. Slopes are 30 to 50 percent.

Typical pedon of Ticino extremely gravelly sandy loam, in an area of Glean-Ticino-Hartig association, about 1,600 feet south and 2,300 feet east of the northwest corner of sec. 35, T. 8 N., R. 24 E.

A11—0 to 1 inch; dark grayish brown (10YR 4/2) extremely gravelly sandy loam, very dark brown (10YR 2/2) moist; weak very fine granular structure; loose, nonsticky and nonplastic; many very fine interstitial pores; 70 percent pebbles and 2 percent cobbles; neutral; abrupt smooth boundary.

A12—1 to 5 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 55 percent pebbles and 5 percent cobbles; neutral; abrupt smooth boundary.

A13—5 to 12 inches; very dark grayish brown (10YR 3/2) extremely gravelly sandy loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few medium roots, common fine roots, and many very fine roots; many very fine interstitial pores and few fine tubular pores; 65 percent pebbles; neutral; clear smooth boundary.

B21t—12 to 19 inches; brown (10YR 4/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and slightly plastic; few medium and coarse roots and common fine and very fine roots; many fine and very fine interstitial pores and few fine tubular pores; many thin clay bridges; 20 percent pebbles; neutral; gradual smooth boundary.

B22t—19 to 28 inches; light yellowish brown (10YR 6/4) gravelly loam, yellowish brown (10YR 5/4) moist; hard, very friable, slightly sticky and nonplastic; few medium, fine, and very fine roots; many very fine interstitial pores; 15 percent pebbles; common thin clay bridges; neutral; gradual wavy boundary.

Cr—28 to 40 inches; highly weathered rhyolite; root mats in fractures.

Thickness of the solum and depth to a paralithic contact are 20 to 40 inches. Reaction is slightly acid or neutral.

The Bt horizon is sandy clay loam, clay loam, or loam that is 15 to 35 percent rock fragments, mostly pebbles, and averages 18 to 35 percent clay.

Tocan Series

The Tocan series consists of very deep, well drained, moderately slowly permeable soils on fans and lake terraces. They formed in alluvium and lacustrine material derived from mixed rock sources. Slopes are 0 to 8 percent.

Typical pedon of Tocan sandy loam, 0 to 2 percent slopes, about 600 feet south and 750 feet west of the northeast corner of sec. 33, T. 12 N., R. 25 E.

A1—0 to 6 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many very fine interstitial pores; 15 percent pebbles; mildly alkaline; abrupt smooth boundary.

B1—6 to 10 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common coarse and medium roots and many fine and very fine roots; few fine and many very fine tubular pores; 10 percent pebbles; mildly alkaline; abrupt wavy boundary.

B2t—10 to 15 inches; yellowish brown (10YR 5/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, firm, very sticky and plastic; common coarse and medium roots and many fine and very fine roots; many fine and very fine tubular pores; common thin clay films on peds and lining pores; continuous very thin clay bridges; 20 percent pebbles; moderately alkaline; clear wavy boundary.

C1si—15 to 32 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; 30 percent very hard silica-cemented nodules; slightly hard, very friable, nonsticky and nonplastic; few coarse and medium roots, common fine roots, and many very fine roots; many fine and very fine tubular pores; 30 percent pebbles; strongly alkaline; clear wavy boundary.

IIC2—32 to 44 inches; light brownish gray (10YR 6/2) very gravelly loamy coarse sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few medium roots and common fine and very fine roots; many fine and very fine interstitial pores; 60 percent pebbles; lime coatings on undersides of pebbles are strongly effervescent; moderately alkaline; abrupt broken boundary.

IIIC3sica—44 to 51 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; brittle; few fine and very fine roots; common very fine tubular pores; weak continuous silica cementation; 10 percent

pebbles; violently effervescent; strongly alkaline; abrupt wavy boundary.

IVC4—51 to 60 inches; light brownish gray (10YR 6/2) very gravelly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine and very fine roots; many fine and very fine interstitial pores; 40 percent pebbles; moderately alkaline.

Thickness of the solum and depth to the Csi horizon are 12 to 18 inches. Depth to the sandy-skeletal IIC horizon is 24 to 36 inches. Reaction is neutral to mildly alkaline in the A horizon, neutral to moderately alkaline in the B2t horizon, and moderately to strongly alkaline in the C horizon.

The B2t horizon contains as much as 20 percent pebbles and averages 20 to 28 percent clay.

Toulon Series

The Toulon series consists of very deep, excessively drained, moderately rapidly permeable soils on bars and shoreline terraces. These soils formed in water-worked gravel and sand derived from mixed rock sources. Slopes are 0 to 4 percent.

Typical pedon of Toulon gravelly loam, 0 to 4 percent slopes, about 3,140 feet east and 510 feet south of the northwest corner of sec. 24, T. 17 N., R. 24 E.

A1—0 to 5 inches; light brownish gray (2.5Y 6/2) gravelly loam, dark grayish brown (2.5Y 4/2) moist; strong very thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium vesicular pores; few very fine roots; 20 percent pebbles; violently effervescent; strongly alkaline; abrupt smooth boundary.

B2—5 to 13 inches; pale yellow (2.5Y 7/4) very gravelly loam, olive brown (2.5Y 4/4) moist; common fine and medium strong brown (7.5YR 5/8) and yellowish red (5YR 5/8) relict iron oxide mottles; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine interstitial and tubular pores; 50 percent pebbles; few thin lime coatings on the underside of pebbles; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C1ca—13 to 60 inches; light gray (N 7/0) and pinkish white (7.5YR 8/2) extremely gravelly coarse sand, very dark gray (N 3/0) and pinkish white (7.5YR 8/2) moist; 60 percent pebbles and 20 percent cobbles; lime coatings on underside of pebbles and cobbles; violently effervescent; moderately alkaline.

Thickness of the solum is 13 to 20 inches. Reaction is moderately alkaline or strongly alkaline. Tufa fragments are on the surface or within the profile in some pedons.

The B2 horizon has 40 to 60 percent rock fragments, mostly pebbles, and 12 to 15 percent clay.

The C horizon is stratified gravelly coarse sand to extremely cobbly coarse sand. It includes 45 to 60 percent pebbles and 15 to 30 percent cobbles.

Trid Series

The Trid series consists of moderately deep, well drained, moderately slowly permeable soils on mountainsides. These soils formed in residuum derived from granitic rock with some influence of colluvium. Slopes are 4 to 50 percent.

Typical pedon of Trid very stony fine sandy loam, 30 to 50 percent slopes, in an area of Trid-Roloc-Drit association; about 1,100 feet west and 1,650 feet north of the southeast corner of sec. 12, T. 11 N., R. 22 E.

A1—0 to 4 inches; grayish brown (10YR 5/2) very stony fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine and common very fine interstitial pores; 25 percent pebbles, 15 percent cobbles, and 15 percent stones; slightly acid; clear smooth boundary.

B21t—4 to 9 inches; brown (10YR 5/3) extremely gravelly sandy clay loam, dark brown (10YR 3/3) moist; strong medium and fine angular blocky structure; hard, firm, sticky and plastic; common medium and fine roots and many very fine roots; common fine and many very fine tubular pores; many thin clay films lining pores and on ped faces; 40 percent fine pebbles and 20 percent cobbles; neutral; clear wavy boundary.

B22t—9 to 13 inches; dark yellowish brown (10YR 4/4) very gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, firm, sticky and plastic; few medium and fine roots and common very fine roots; few fine and common very fine tubular pores; continuous thin clay films on peds; 40 percent fine pebbles and 15 percent cobbles; neutral; clear wavy boundary.

B23t—13 to 23 inches; dark yellowish brown (10YR 4/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; very hard, firm, very sticky and very plastic; few medium and fine roots and many very fine roots; few fine and common very fine tubular pores; continuous thin clay films on peds; 45 percent pebbles and 15 percent cobbles; neutral, gradual wavy boundary.

Cr—23 inches; soft, weathered granitic bedrock; clay coatings along fracture planes.

The mollic epipedon is 8 to 12 inches thick. Thickness of the solum and depth to weathered bedrock are 20 to 40 inches.

The Bt horizon is sandy clay loam or clay loam that is 55 to 70 percent rock fragments, mostly pebbles, and 25 to 30 percent clay.

Ultra Series

The Ultra series consists of very deep, well drained, very slowly permeable soils on lake plains. These soils formed in lacustrine sediment derived from mixed rock sources and are influenced by a thin layer of alluvium. Slopes are 0 to 2 percent.

Typical pedon of Ultra gravelly fine sandy loam, about 400 feet northwest of Lahontan well, 1,800 feet south of the projected northwest corner of sec. 12, T. 16 N., R. 25 E.

A1—0 to 2 inches; light gray (10YR 7/1) gravelly fine sandy loam, grayish brown (10YR 7/2) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine vesicular pores; 20 percent pebbles; mildly alkaline; abrupt smooth boundary.

B2t—2 to 11 inches; light brown (7.5YR 6/4) clay, brown (7.5YR 4/4) moist; moderate fine prismatic structure; hard, firm, very sticky and very plastic; many very fine and few fine roots; many fine and very fine tubular pores; continuous moderately thick clay films on peds; few thin violently effervescent lime veins in the lower 3 inches; moderately alkaline; clear smooth boundary.

C1—11 to 36 inches; pale brown (10YR 6/3) silty clay, brown (10YR 5/3) moist; massive; hard, firm, sticky and plastic; few very fine tubular pores; neutral; clear wavy boundary.

C2cs—36 to 45 inches; light brownish gray (2.5Y 6/2) stratified silty clay loam and silty clay, grayish brown (2.5Y 5/2) moist; massive; hard, firm, sticky and plastic; very few very fine tubular pores; many white (10YR 8/1) gypsum filaments and soft masses; neutral; gradual wavy boundary.

C3—45 to 60 inches; light gray (2.5Y 7/2) silty clay, grayish brown (2.5Y 5/2) moist; common fine reddish yellow relict iron mottles; massive; very hard, very firm, sticky and very plastic; few fine and very fine tubular pores; neutral.

The solum is 7 to 13 inches thick. Reaction is neutral to strongly alkaline. The control section is clay, silty clay, or silty clay loam that is 35 to 50 percent clay. Reaction is neutral to strongly alkaline.

Structure of the B2t horizon dominantly is columnar or prismatic, parting to angular blocky in some pedons. The sodium adsorption ratio is 15 to 60. Reaction commonly is buffered by neutral salts or gypsum.

The C horizon is clay or silty clay with thin strata of silty clay loam or silt loam. Salt and gypsum crystals, veins, and masses commonly are in the C horizon.

Uripnes Series

The Uripnes series consists of very shallow, well drained, moderately rapidly permeable soils on mountain ridges and side slopes. These soils formed in residuum and local colluvium derived from granitic rocks. Slopes are 30 to 50 percent.

Typical pedon of Uripnes very gravelly sandy loam, in an area of Uripnes-Chill-Rock outcrop association, about 2,200 feet south and 650 feet east of the northwest corner of sec. 6, T. 12 N., R. 25 E.

A11—0 to 2 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; about 45 percent pebbles; many fine and very fine interstitial pores; noneffervescent; neutral; abrupt smooth boundary.

A12—2 to 5 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; 40 percent pebbles; few fine and many very fine roots; many very fine interstitial pores; neutral; clear smooth boundary.

C1—5 to 9 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; 60 percent pebbles; common medium roots, few fine roots, and many very fine roots; many very fine interstitial pores; noneffervescent matrix and strongly effervescent coatings on pebbles; mildly alkaline; abrupt wavy boundary.

Cr—9 to 30 inches; weathered granite; gradual wavy boundary.

R—30 inches; hard granite.

Depth to the paralithic contact is 3 to 14 inches. Depth to the lithic contact is 20 to 40 inches. The control section from the surface to the paralithic contact is very gravelly sandy loam or very gravelly coarse sandy loam that is 5 to 10 percent clay and 35 to 60 percent rock fragments, mostly fine gravel. Reaction is neutral or mildly alkaline.

Veta Series

The Veta series consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans and stream terraces. These soils formed in gravelly alluvium derived from mixed rock sources. Slopes are 2 to 15 percent.

Typical pedon of Veta very gravelly sandy loam, 2 to 8 percent slopes, about 900 feet north of benchmark 4644, 2,450 feet north and 1,150 feet west of the southeast corner of sec. 9, T. 12 N., R. 23 E.

A1—0 to 6 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2)

moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium and fine roots and many very fine roots; many fine and very fine interstitial pores; 45 percent pebbles and 15 percent cobbles; neutral; clear smooth boundary.

B2—6 to 18 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium roots and common fine and very fine roots; many fine and very fine interstitial pores; 50 percent pebbles and 20 percent cobbles; neutral; clear smooth boundary.

C1—18 to 38 inches; light brownish gray (10YR 6/2) extremely gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium roots and common fine and very fine roots; many fine and very fine interstitial pores; 50 percent pebbles and 10 percent cobbles; neutral; gradual smooth boundary.

C2ca—38 to 60 inches; light gray (10YR 7/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium and fine roots and common very fine roots; many fine and very fine interstitial pores; 35 percent pebbles and 10 percent cobbles; coatings of lime on undersides of pebbles and cobbles; noneffervescent matrix; neutral.

Thickness of the solum is 12 to 20 inches. The profile is noneffervescent to a depth of 28 to 40 inches, and it is slightly effervescent to strongly effervescent or has lime-coated rock fragments below. The control section averages very gravelly or extremely gravelly loam, sandy loam, or coarse sandy loam. It has 35 to 75 percent rock fragments, mostly pebbles, and 5 to 15 percent clay. Reaction is neutral to moderately alkaline, commonly increasing in alkalinity with depth.

Vylach Series

The Vylach series consists of shallow, well drained, moderately slowly permeable soils on terraces. These soils formed in alluvium derived from basic igneous rocks over residuum derived from soft Tertiary sedimentary rocks. Slopes are 2 to 8 percent.

Typical pedon of Vylach gravelly sandy loam, in an area of Vylach-Weena association, about 650 feet south and 2,000 feet west of the northeast corner of sec. 31, T. 18 N., R. 24 E.

A1—0 to 2 inches; light gray (10YR 7/1) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; soft, very friable, nonsticky and nonplastic; many fine vesicular pores; 30 percent pebbles; neutral; abrupt smooth boundary.

B1—2 to 5 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; strong fine granular structure; soft, very friable, slightly sticky and slightly plastic; few fine and very fine roots; many fine interstitial pores; 10 percent pebbles; neutral; clear wavy boundary.

B2t—5 to 12 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; hard, firm, very sticky and plastic; few medium and fine roots and common very fine roots; many fine and very fine tubular pores; few thin clay films on peds; less than 10 percent pebbles; neutral; abrupt wavy boundary.

C1sim—12 to 17 inches; light yellowish brown (10YR 6/4) strongly silica-cemented duripan, dark brown (10YR 4/3) moist; massive; very hard, very firm, brittle; few medium, fine, and very fine roots; common fine and very fine interstitial pores; 60 percent fine pebbles; moderately alkaline; abrupt wavy boundary.

C2sicam—17 to 27 inches; light brownish gray (10YR 6/2) alternating layers of weakly cemented and strongly cemented very gravelly loamy sand, dark brown (10YR 3/3) moist; massive; very hard, very firm, brittle; few very fine roots; many fine and very fine interstitial pores; 70 percent fine pebbles; thin discontinuous silica laminae; slightly effervescent in spots; strongly alkaline; abrupt smooth boundary.

Cr—27 inches; strata of soft sandstone and siltstone.

Thickness of the solum and depth to the duripan are 9 to 17 inches. Depth to the paralithic contact is 20 to 30 inches. Reaction is neutral to strongly alkaline.

The B2t horizon is sandy clay loam or clay loam and averages 20 to 35 percent clay and less than 15 percent pebbles.

The duripan has thin discontinuous silica laminae in some parts.

The bedrock is soft sandstone, siltstone, or diatomite.

Wabuska Series

The Wabuska series consists of very deep, somewhat poorly drained, moderately permeable soils on alluvial flats. These soils formed in alluvial material derived from mixed rock sources. Slopes are 0 to 2 percent.

Typical pedon of Wabuska loam, strongly saline-alkali, about 1,300 feet east and 50 feet south of the center of sec. 12, T. 13 N., R. 25 E.

A11—0 to 3 inches; light gray (10YR 7/2) loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine vesicular pores; slightly effervescent; strongly alkaline; abrupt smooth boundary.

A12—3 to 9 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and plastic; common fine and very fine roots and saltgrass rhizomes; many very fine tubular pores; strongly effervescent; very strongly alkaline; clear smooth boundary.

C1—9 to 15 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; common medium faint yellowish brown (10YR 5/4) iron mottles; massive; slightly hard, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine tubular pores; slightly effervescent; very strongly alkaline; clear wavy boundary.

C2ca—15 to 25 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; common fine distinct dark brown (10YR 3/3) iron mottles; massive; slightly hard, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine tubular pores; 10 percent irregularly shaped lime nodules; strongly effervescent; very strongly alkaline; abrupt smooth boundary.

A1b—25 to 29 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; many medium faint dark brown (10YR 3/3) iron mottles; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and very fine roots; common very fine tubular pores; strongly alkaline; abrupt smooth boundary.

C3—29 to 34 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; common fine distinct brown (10YR 4/3) iron mottles; massive; slightly hard, very friable, nonsticky and nonplastic; few fine and very fine roots; few very fine tubular pores; strongly alkaline; abrupt smooth boundary.

IIC4—34 to 39 inches; light brownish gray (10YR 6/2) sand, dark grayish brown (10YR 4/2) moist; many medium faint dark brown (10YR 4/3) iron mottles; single grain; loose, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; moderately alkaline; abrupt smooth boundary.

IIIC5—39 to 60 inches; very pale brown (10YR 7/3) stratified loam, silt loam, and very fine sandy loam, brown (10YR 5/3) moist; common fine and medium distinct strong brown (7.5YR 4/2) when moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; few very fine tubular pores; strongly effervescent in spots; moderately alkaline.

The control section averages 10 to 18 percent clay and less than 5 percent pebbles. Reaction is strongly alkaline or very strongly alkaline in the upper 20 inches, but the alkalinity commonly decreases with depth. The sodium adsorption ratio commonly is more than 30 in the upper 20 inches but decreases below this depth.

The C horizon is stratified loam to sand but dominantly is fine sandy loam. It has mottles that are faint to prominent.

Wedertz Series

The Wedertz series consists of very deep, well drained, moderately slowly permeable soils on old lake terraces. These soils formed in alluvium overlying lacustrine sediment derived mainly from granitic rocks. Slopes are 0 to 15 percent.

Typical pedon of Wedertz coarse sandy loam, in an area of Wedertz-Wellington coarse sandy loams, 4 to 8 percent slopes, about 100 feet south and 100 feet west of the center of sec. 21, T. 11 N., R. 24 E.

A1—0 to 3 inches; brown (10YR 5/3) loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; slightly acid; abrupt smooth boundary.

A2—3 to 5 inches; light gray (10YR 7/1) sandy loam, dark brown (10YR 4/3) moist; weak medium and thick platy structure; soft, very friable, nonsticky and nonplastic; common medium and few fine and very fine vesicular pores; neutral; abrupt smooth boundary.

B1—5 to 9 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium, fine, and very fine roots; few very fine tubular pores and common very fine interstitial pores; neutral; clear smooth boundary.

B2t—9 to 16 inches; brown (10YR 5/3) sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, sticky and plastic; common medium and very fine and few fine interstitial pores; many thin clay films in pores and many thin clay bridges; neutral; clear smooth boundary.

B3t—16 to 28 inches; brown (10YR 5/3) sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, sticky and slightly plastic; few very fine roots; many very fine interstitial pores and common very fine tubular pores; common thin clay bridges; neutral; abrupt smooth boundary.

C1si—28 to 33 inches; very pale brown (10YR 7/3) sandy loam, dark brown (10YR 4/3) moist; massive; hard, friable, nonsticky and slightly plastic; few very fine roots; many very fine interstitial pores; many thin and few moderately thick silica bridges; neutral; abrupt smooth boundary.

IIC2sica—33 to 60 inches; variegated light gray (10YR 7/2) and white (10YR 8/2) loam, dark yellowish brown (10YR 4/4) and brown (10YR 5/3) moist; massive; very hard, firm, brittle; few very fine roots;

few very fine interstitial pores; continuous weak silica cementation; strongly effervescent; moderately alkaline.

Thickness of the solum and depth to the weakly cemented horizon are 20 to 35 inches. Reaction is slightly acid or neutral in the solum and is neutral to strongly alkaline in the C horizon.

The Bt horizon is sandy clay loam or clay loam that is 20 to 30 percent clay and less than 5 percent rock fragments.

The C horizon is loam or sandy loam and averages 10 to 18 percent clay and less than 5 percent rock fragments.

Wedlar Series

The Wedlar series consists of very deep, well drained, slowly permeable soils on old alluvial fans in slightly concave areas. These soils formed in alluvium derived from granite rock. Slopes are 2 to 4 percent.

Typical pedon of Wedlar loamy sand in an area of Wellsed-Wedlar association, about 1,500 feet west and 1,400 feet north of the southeast corner of sec. 35, T. 7 N., R. 27 E.

A11—0 to 4 inches; grayish brown (10YR 5/2) loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 5 percent pebbles; neutral; abrupt smooth boundary.

A12—4 to 6 inches; light gray (10YR 7/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few medium roots and common fine and very fine roots; many fine and very fine vesicular pores; 2 percent pebbles; neutral; abrupt smooth boundary.

B11t—6 to 9 inches; light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots and common fine and very fine roots; few fine and many very fine pores; 5 percent pebbles; many very thin clay bridges; neutral; clear smooth boundary.

B12t—9 to 14 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few medium and fine roots and common very fine roots; few fine and many very fine tubular pores; continuous thin clay bridges; 5 percent pebbles; neutral; clear smooth boundary.

B21t—14 to 19 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; few medium and fine roots and common very fine roots; few fine and many very fine tubular pores; continuous thin clay bridges; 5 percent pebbles; strongly alkaline; clear wavy boundary.

B22t—19 to 29 inches; yellowish brown (10YR 5/4) sandy clay, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine roots; few fine and common very fine tubular pores; continuous thin clay films on peds and lining pores; 10 percent pebbles; neutral; clear wavy boundary.

B3t—29 to 37 inches; light yellowish brown (10YR 6/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; very hard, firm, sticky and plastic; few very fine roots; few fine and common very fine tubular pores; common thin and few moderately thick clay films on peds and lining pores; 10 percent pebbles; neutral; clear wavy boundary.

C1si—37 to 60 inches; pale brown (10YR 6/3) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, very friable, slightly sticky and slightly plastic; few very fine roots; few fine and common very fine tubular pores; 20 percent weak durinodes; 15 percent pebbles and 5 percent cobbles; neutral.

Thickness of the solum and depth to the Csi horizon are 25 to 40 inches.

Reaction of the A horizon is slightly acid or neutral.

The Bt horizon averages 27 to 35 percent clay. Reaction is neutral or mildly alkaline. The B2t horizon is sandy clay loam or sandy clay and averages 30 to 40 percent clay.

The Csi horizon contains 20 to 75 percent durinodes in a friable matrix or is discontinuously weakly silica-cemented. The C horizon is gravelly sandy loam or gravelly loamy sand and has a reaction that is neutral to moderately alkaline.

Weena Series

The Weena series consists of very shallow, well drained, moderately permeable soils on side slopes of dissected Tertiary lakebeds. These soils formed in residuum derived from late Tertiary sandstone and siltstone. Slopes are 15 to 50 percent.

Typical pedon of Weena silt loam in an area of Weena-Malpais association, about 1,200 feet south and 2,250 feet east of the northwest corner of sec. 19, T. 11 N., R. 25 E.

A1—0 to 2 inches; grayish brown (2.5Y 5/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, friable, sticky and plastic; many very fine interstitial pores; 10 percent pebbles and 2 percent cobbles; mildly alkaline; abrupt smooth boundary.

C1—2 to 7 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, friable, sticky and plastic; common fine and many very fine roots; few fine and many very fine interstitial pores; 70 percent pebble-sized pieces of soft weathered Tertiary bedrock that crushes easily by hand; neutral; clear wavy boundary.

C2r—7 to 17 inches; weathered, highly fractured sandstone and siltstone; many gypsum veins and pockets; abrupt smooth boundary.

R—17 inches; slightly fractured Tertiary siltstone; few root mats along fracture planes in the upper 12 inches.

Depth to the paralithic contact is 4 to 14 inches. The control section contains 35 to 90 percent soft rock fragments and less than 15 percent hard rock fragments. It is 18 to 27 percent clay. Reaction is neutral to strongly alkaline. The profile is noneffervescent in some parts.

Wellington Series

The Wellington series consists of shallow, well drained, moderately slowly permeable soils on old high lake terraces. These soils formed in alluvium and lacustrine material derived from mixed rock sources. Slopes are 0 to 15 percent.

Typical pedon of Wellington coarse sandy loam, in an area of Wedertz-Wellington coarse sandy loams, 4 to 8 percent slopes, about 600 feet south of the center of sec. 21, T. 11 N., R. 24 E.

A1—0 to 2 inches; grayish brown (10YR 5/2) loamy coarse sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine roots; many fine and very fine interstitial pores; neutral; abrupt smooth boundary.

A2—2 to 4 inches; light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; gray (10YR 5/1) organic stains; massive; slightly hard, very friable, slightly sticky and slightly plastic; few medium, fine, and very fine vesicular pores; slightly acid; clear smooth boundary.

B2t—4 to 9 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; common medium and fine roots and many very fine roots; few medium and fine and many very fine tubular pores; common thin clay films lining pores and many pressure cutans; slightly acid; clear smooth boundary.

B3tsi—9 to 15 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; hard, firm, sticky and plastic; few fine and very fine roots; common fine and many very fine tubular pores; 30 percent very firm durinodes; common thin clay films on peds and many thin clay films lining pores; slightly acid; abrupt wavy boundary.

IIC1sicam—15 to 26 inches; gray (10YR 6/1), indurated silica- and lime-cemented duripan with light gray (10YR 7/1) coatings of lime, dark grayish brown (10YR 4/2) moist; extremely hard, extremely firm; few fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline; clear wavy boundary.

IIC2sica—26 to 39 inches; light gray (10YR 7/1), discontinuous, very thin indurated silica-cemented laminae stratified with light gray (10YR 7/2) weakly silica- and lime-cemented very fine sandy loam, grayish brown (10YR 5/2) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

IIC3sica—39 to 48 inches; variegated light brownish gray (10YR 6/2) and white (10YR 8/2) very fine sandy loam, dark brown (10YR 3/3) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 90 percent small firm durinodes; strongly effervescent; strongly alkaline.

Thickness of the solum and depth to the duripan are 12 to 20 inches.

The Bt horizon is sandy loam or sandy clay loam that is 18 to 35 percent clay and less than 15 percent rock fragments. Reaction is slightly acid or neutral.

The duripan is massive or has weak platy structure in the upper part. The lower part of the C horizon is weakly cemented or strongly cemented, medium textured material with few or common, thin, discontinuous indurated silica laminae. The indurated laminae are noncalcareous except for the thin lime coatings.

Wellsed Series

The Wellsed series consists of moderately deep, well drained, moderately slowly permeable soils on old alluvial fans. These soils formed in alluvium derived mainly from granitic rocks. Slopes are 2 to 8 percent.

Typical pedon of Wellsed gravelly fine sand, in an area of Wellsed-Wedlar association, about 450 feet north and 500 feet west of the southeast corner of sec. 36, T. 7 N., R. 27 E.

A11—0 to 2 inches; pale brown (10YR 6/3) gravelly fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 20 percent fine pebbles; neutral; abrupt smooth boundary.

A12—2 to 6 inches; light gray (10YR 7/2) gravelly loamy fine sand, brown (10YR 4/3) moist; weak medium and fine granular structure; soft, very friable,

nonsticky and nonplastic; few medium roots and common fine and very fine roots; common fine vesicular pores and many very fine interstitial pores; 15 percent fine pebbles; neutral; abrupt wavy boundary.

B2t—6 to 10 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; few medium roots and many fine and very fine roots; few fine and common very fine tubular pores; many thin and few moderately thick clay films on peds and lining pores; 20 percent fine pebbles; moderately alkaline; clear wavy boundary.

B3t—10 to 15 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common fine and very fine roots; many very fine interstitial pores; continuous thin clay bridges; 15 percent fine pebbles; strongly alkaline; clear wavy boundary.

C1ca—15 to 19 inches; very pale brown (10YR 7/3) gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; 20 percent fine pebbles; very strongly alkaline; strongly effervescent; gradual wavy boundary.

C2casi—19 to 35 inches; pale brown (10YR 6/3) gravelly loamy sand, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; 25 percent fine pebbles; 20 percent hard durinodes; slightly effervescent in spots; very strongly alkaline; abrupt wavy boundary.

C3sicam—35 to 50 inches; indurated duripan; indurated, continuous laminar cap 5 to 10 millimeters thick; clear wavy boundary.

C4sica—50 to 60 inches; weakly silica- and lime-cemented loamy sand and sandy loam; strongly effervescent; strongly alkaline.

Thickness of the solum is 12 to 20 inches. Depth to the indurated duripan is 20 to 40 inches. Reaction is mildly alkaline to strongly alkaline in the Bt horizon and is strongly alkaline or very strongly alkaline in the Csica horizon. The Bt horizon averages 20 to 35 percent clay and 15 to 35 percent rock fragments, mostly pebbles.

Whichman Series

The Whichman series consists of deep, well drained, moderately rapidly permeable soils on the sides of hills and mountains. These soils formed in residuum and colluvium derived from basic igneous rocks. Slopes are 30 to 50 percent.

Typical pedon of Whichman cobbly loamy sand, in an area of Whichman-Ister-Rock outcrop association, about 1,300 feet east and 2,500 feet north of the southwest corner of sec. 17, T. 8 N., R. 27 E.

A11—0 to 2 inches; brown (10YR 5/3) cobbly loamy sand, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; few fine and many very fine interstitial pores; 15 percent pebbles and 15 percent cobbles; mildly alkaline; clear smooth boundary.

A12—2 to 15 inches; brown (10YR 5/3) cobbly loamy sand, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common coarse and medium roots and many fine and very fine roots; common fine and many very fine interstitial pores; 15 percent pebbles and 15 percent cobbles; mildly alkaline; clear smooth boundary.

B2—15 to 25 inches; brown (10YR 5/3) extremely stony sandy loam, dark brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common coarse roots and many medium, fine, and very fine roots; few fine and many very fine pores; 20 percent pebbles, 25 percent cobbles, and 20 percent stones; mildly alkaline; gradual wavy boundary.

C1—25 to 33 inches; pale brown (10YR 6/3) extremely stony sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common fine roots; common fine and very fine tubular pores; 25 percent pebbles, 15 percent cobbles, and 25 percent stones; mildly alkaline; gradual smooth boundary.

C2—33 to 56 inches; very pale brown (10YR 7/3) very cobbly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few medium and fine roots and common very fine roots; few fine and many very fine interstitial pores; 20 percent pebbles, 20 percent cobbles, and 15 percent stones; mildly alkaline; abrupt wavy boundary.

R—56 inches; fractured andesite; root mats in fractures.

Thickness of the mollic epipedon is 10 to 18 inches. Thickness of the solum is 20 to 30 inches. Depth to bedrock is 40 to 60 inches. The control section is loam, sandy loam, or loamy sand and averages 35 to 60 percent rock fragments, mainly cobbles and stones, and 10 to 18 percent clay. Reaction is neutral or mildly alkaline.

The C horizon is sandy loam or loamy sand that has more than 35 percent rock fragments, mostly cobbles and stones.

Wile Series

The Wile series consists of shallow, well drained, slowly permeable soils on mountainsides and ridges. These soils formed in residuum derived from granite. Slopes are 15 to 30 percent.

Typical pedon of Wile gravelly sandy loam, in an area of Minneha-Berit-Wile association, about 3,000 feet due north of Lobdell summit, 1,700 feet south and 1,000 feet west of the projected northeast corner of sec. 10, T. 9 N., R. 25 E.

A11—0 to 3 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine roots; many fine and very fine interstitial pores; 25 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

A12—3 to 7 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and fine roots; common fine interstitial pores and few fine tubular pores; 25 percent pebbles; neutral; clear smooth boundary.

B2t—7 to 12 inches; brown (7.5YR 4/4) gravelly clay, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few coarse roots and many medium and fine roots; common medium and fine tubular pores; many thick clay films on peds and lining pores; 30 percent pebbles; neutral; gradual smooth boundary.

B3t—12 to 18 inches; brown (7.5YR 4/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; massive; hard, firm, sticky and plastic; few coarse roots and common medium and fine roots; few fine tubular pores; many thick clay coatings on mineral grains; 35 percent pebbles; neutral; clear smooth boundary.

Cr—18 inches; soft, weathered granite; clay coatings and some roots extending into fractures.

The mollic epipedon is 7 to 9 inches thick. Thickness of the solum and depth to the paralithic contact are 12 to 20 inches. Hard bedrock is below a depth of 40 inches. Reaction is slightly acid or neutral.

The Bt horizon is gravelly clay or gravelly clay loam that is 35 to 45 percent clay and 20 to 35 percent rock fragments, mostly fine pebbles.

Yerington Series

The Yerington series consists of very deep, well drained, rapidly permeable soils on alluvial flats and alluvial fans. These soils formed in eolian material. Slopes are 0 to 15 percent.

Typical pedon of Yerington loamy fine sand, 2 to 4 percent slopes, about 200 feet south of the northeast corner of sec. 32, T. 13 N., R. 26 E.

A1—0 to 8 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; moderately alkaline; abrupt wavy boundary.

C1—8 to 19 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; strongly alkaline; clear wavy boundary.

C2—19 to 27 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; slightly effervescent; strongly alkaline; clear wavy boundary.

C3sica—27 to 45 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; 10 percent large, hard, firm durinodes; common very fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline; gradual wavy boundary.

C4ca—45 to 60 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline.

Depth to the Cca horizon is 12 to 40 inches. The control section is stratified but averages loamy fine sand or loamy sand that is 2 to 5 percent clay and less than 15 percent rock fragments. Reaction of the A horizon is mildly alkaline or moderately alkaline. A few thin clay lamellae are in the upper part of the C horizon in some pedons. Reaction of the C horizon is strongly alkaline or very strongly alkaline. A Csica horizon is present in some pedons.

Yerington Variant

Yerington Variant consists of very deep, well drained, moderately slowly permeable soils on long ridges and isolated hills. These soils formed in eolian material derived from mixed rock sources. Slopes are 2 to 4 percent.

Typical pedon of Yerington Variant loam, 2 to 4 percent slopes, about 1,200 feet west and 2,600 feet north of southeast corner of sec. 36, T. 12 N., R. 25 E.

A11—0 to 2 inches; grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; strong fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine interstitial pores; slightly

effervescent; strongly alkaline; abrupt smooth boundary.

A12—2 to 4 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and plastic; few medium, fine, and very fine roots; few fine and very fine tubular pores; slightly effervescent; moderately alkaline; clear smooth boundary.

C1—4 to 26 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and plastic; common very fine roots and few fine and medium roots; many very fine interstitial pores; slightly effervescent in some parts; strongly alkaline; abrupt smooth boundary.

C2—26 to 45 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; massive; slightly hard, friable, sticky and plastic; common very fine roots and few medium and fine roots; many very fine interstitial pores; slightly effervescent; strongly alkaline; clear smooth boundary.

C3—45 to 60 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine interstitial pores; slightly effervescent; strongly alkaline.

The soil is noneffervescent to strongly effervescent throughout the profile, but it is noneffervescent in all pedons between depths of 10 and 20 inches. Reaction is moderately alkaline to very strongly alkaline. The C horizon is stratified loam to clay loam and averages 20 to 30 percent clay.

Zephan Series

The Zephan series consists of moderately deep, well drained, slowly permeable soils on hillsides. These soils formed in residuum and colluvium derived from rhyolite and andesite. Slopes are 15 to 50 percent.

Typical pedon of Zephan extremely cobbly loam, in an area of Loomer-Zephan-Olac association, about 400 feet east and 500 feet north of the southwest corner of sec. 12, T. 14 N., R. 23 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) extremely cobbly loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine vesicular pores; 25 percent pebbles, 25 percent cobbles, and 10 percent stones; neutral; abrupt wavy boundary.

B1t—2 to 4 inches; brown (7.5YR 4/4) extremely gravelly clay loam, brown (7.5YR 4/4) moist; strong fine granular structure; slightly hard, firm, sticky and plastic; few fine and common very fine roots; many very fine interstitial pores; continuous thin clay films on peds; 40 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

B21t—4 to 10 inches; brown (7.5YR 4/4) extremely gravelly clay, brown (7.5YR 4/4) moist; strong fine subangular blocky structure; hard, firm, very sticky and very plastic; few medium roots, common fine roots and many very fine roots; few medium and common fine and very fine tubular pores; 40 percent pebbles, 15 percent cobbles, and 5 percent stones; slightly acid; clear wavy boundary.

B22t—10 to 20 inches; brown (7.5YR 5/4) very cobbly clay, brown (7.5YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, very firm, very sticky and very plastic; common medium, fine, and very fine roots; few fine and common very fine tubular pores; 30 percent pebbles, 20 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

B3t—20 to 37 inches; yellowish brown (10YR 5/4) very cobbly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, friable, sticky and plastic; few fine and very fine roots; common very fine tubular pores; 30 percent pebbles, 20 percent cobbles, and 5 percent stones; slightly acid; abrupt wavy boundary.

Cr—37 inches; weathered andesite; roots and clay films along fracture planes.

Thickness of the solum and depth to the paralithic contact are 25 to 40 inches. Hard bedrock is below a depth of 40 inches. Reaction of the A horizon is medium acid to neutral.

The Bt horizon averages clay and sandy clay but is clay loam in some pedons. It has 35 to 45 percent clay and averages 35 to 60 percent rock fragments with some parts having as much as 75 percent rock fragments, mostly cobbles. Reaction is medium acid to slightly acid.

Zyzzi Series

The Zyzzi series consists of very shallow, well drained, moderately slowly permeable soils on hills and rolling uplands. These soils formed in residuum derived from granitic bedrock. Slopes are 8 to 30 percent.

Typical pedon of Zyzzi very gravelly sandy loam, 8 to 30 percent slopes, about 450 feet north and 1,550 feet west of the southeast corner of sec. 36, T. 9 N., R. 27 E.

A1—0 to 2 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; weak medium and thin platy structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; common fine and many very fine interstitial pores; 40 percent fine pebbles; neutral; abrupt smooth boundary.

B2t—2 to 6 inches; brown (7.5YR 4/4) extremely gravelly sandy clay loam, dark brown (7.5YR 3/4) moist; moderate medium and fine subangular blocky

structure; hard, firm, sticky and plastic; common medium and fine roots and many very fine roots; few fine and common very fine tubular pores; 60 percent fine pebbles; many thin and moderately thick clay films and bridges and few thick clay films and bridges on peds and lining pores; neutral; abrupt wavy boundary.

Cr—6 to 40 inches; soft, weathered granitic bedrock.

Thickness of solum and depth to the paralithic contact are 4 to 10 inches. The control section averages 20 to 35 percent clay and 50 to 75 percent rock fragments, mostly fine pebbles. Reaction is neutral or mildly alkaline.

The B2t horizon has 60 to 75 percent rock fragments, mostly fine pebbles, and 25 to 35 percent clay.

Formation of the Soils

Soil is a natural body on the earth's surface in which plants grow. It is a mixture of varying proportions of rocks, minerals, organic matter, water, and air. The rocks and minerals are fragmented and are partly or wholly weathered. Soils have distinctive layers, or horizons, that are the product of environmental forces acting upon material deposited or accumulated through geologic activity.

The overall landscape of the survey area, mainly the mountains and valleys, is the result of geologic, stratigraphic, and structural control. The present topography and landforms, however, are primarily the result of events during Quaternary time. The kinds of soil that formed are indicative of the stability and age of the surfaces of the landforms on which they occur.

Soils differ from one another in different localities and within short distances. The differences are the result of the interaction of five soil-forming factors that are known to affect soil formation. These factors are (1) climate, mainly the temperature and kind and amount of precipitation that have existed since accumulation of the parent material; (2) relief, mainly as it affects the internal and external soil properties such as drainage, aeration, susceptibility to erosion, and exposure to sun and wind; (3) biological forces, mainly the plant cover and the organisms living in and on the soil; (4) parent material, including texture and structure of the material as well as its mineralogic and chemical composition; and (5) the length of time that the soil-forming factors have been operating.

Climate

The climate of the survey area is characterized by warm, dry summers and cool, moist winters. The average annual precipitation ranges from about 5 inches at the lowest elevations in the eastern central valleys to about 16 inches or more at the highest elevations in the Pine Nut Mountains to the west and the Desert Peak and Bald Mountain areas to the south. The average annual air temperature ranges from about 54 degrees F in the eastern part to 41 degrees F or lower in some of the high mountain ranges. Major climatic variations are the result of the effects of topography and relief. Temperature decreases with elevation. Precipitation increases with elevation, and the rate of increase is higher in the mountainous area in the western and southern parts of the survey area than in the eastern part. As a consequence, the soils in the survey area can be divided into general climatic zones with respect to elevation and longitude.

At the lower elevations, 4,200 to 5,000 feet, the average annual precipitation is about 4 to 8 inches. In this arid part of the survey area, weathering of parent material is slow, leaching is incomplete, and the rate of eluviation and illuviation is very slow. The plant cover is sparse and consists mainly of drought- and salt-tolerant shrubs. Typically, the soils are low in organic matter content and have a thin, light-colored A horizon. Soluble salts and calcium carbonate accumulate in the soil profile at a relatively shallow depth.

With increasing elevation there is an accompanying increase in precipitation, which results in the formation of soils that are leached of salts and calcium carbonate to a greater depth, have lower reaction, support different kinds and a higher density of vegetation, and have a thicker and darker-colored A horizon. Fulstone soils (Abruptic Xerollic Durargids) and Veta soils (Xerollic Camborthids) are examples of soils that formed in areas at lower elevations where precipitation is about 10 inches. Hyloc and Ister soils (Aridic Argixerolls) are examples of soils that have formed in areas at intermediate elevations.

At the highest elevations, as much as 10,000 feet, precipitation is 12 to 16 inches or more. Leaching of salts and calcium carbonate is more intensive. The soils are neutral or slightly acid and have a thick A horizon that is high in content of organic matter. Bradshaw soils (Typic Haploxerolls), Glean soils (Pachic Haploxerolls), and Glean Variant soils (Typic Cryoborolls) are examples of soils that formed at the higher elevations.

In winter, freezing and thawing generally occurs throughout the survey area, except in those areas that generally are insulated by snow cover. The effects of frost action are discernible by the heaving of plants, development of miniature stone rings, and erosion of the surface of the soils as a result of solifluction. In some areas at the higher elevations, freezing and thawing has fractured and displaced the bedrock.

Relief

Relief, through its effects on drainage, runoff, erosion, and exposure to the sun and wind, has had an important effect on soil formation in the survey area. The mountain

ranges, valleys, and flood plains reflect the variations in relief in the area.

The mountain ranges are mainly characterized by excessive relief. Runoff is rapid or very rapid, and the hazard of erosion is high. The removal of material by erosion inhibits or prevents soil development. Development of soils on unstable mountain surfaces that are subject to a high rate of geologic erosion is primarily limited to accumulation of organic matter and formation of a dark-colored A horizon. A cambic or an argillic horizon has formed in soils on the more stable mountain surfaces, where the rate of geologic erosion has been slower. Berit soils (Xerollic Haplargids) and Hyloc soils (Aridic Argixerolls) are examples of soils that formed on the more stable mountainsides and have an argillic horizon. Whichman soils (Aridic Haploxerolls) are an example of soils that have a cambic horizon. Minneha and Nall soils (Aridic Haploxerolls) are examples of soils that formed on the less stable mountainsides.

Soils on concave, north-facing mountainsides commonly have snow pockets that remain until late in spring or early in summer. The effect of temperature and moisture is enhanced in these areas, resulting in the growth of dense stands of shrubs and grass. The soils in these areas have developed a thick, dark-colored A horizon that has a high content of organic matter. Drit and Glean soils (Pachic Haploxerolls) are examples of these soils.

The valleys are essentially either semibolsons or bolsons that receive runoff primarily from the surrounding mountains. In this survey area the valleys are characterized by a series of nearly level basin floors bordered by a piedmont consisting of alluvial fans or coalesced fan piedmonts (*14*). They consist of Tertiary-Quaternary valley fill material. Small playas or intermittent lakes are in Churchill Valley and at the northern ends of Mason and Smith Valleys.

In the Smith Valley and Carson Plains areas, stream erosion has dissected parts of the valley fill. Downcutting of the valleys has been interrupted several times, and these interruptions are marked by the development of terrace and alluvial fan remnants. The dissection patterns in these areas have resulted in sloping interfluvial surfaces, steep interfluvial side slopes, and flood plains along drainageways. The interfluvial areas have been relatively stable over a long period of time as a result of drainage water bypassing the uplands through dissecting channels. Saralegui soils (Xerollic Haplargids), Wedertz soils (Durixerollic Haplargids), and Wellington soils (Xerollic Durargids) are examples of soils on stable interfluves. Weena soils (Typic Torriorthents) are examples of soils on steep interfluvial side slopes. Fallon soils (Aquic Xerofluvents) and Rose Creek soils (Fluvaquentic Haploxerolls) are examples of soils in drainageways.

The nearly level old lake plains and alluvial flats in Churchill Valley are remnants of Pleistocene age Lake Lahontan. Runoff in these areas is slow, and drainage is somewhat restricted. The soils are light in color and contain soluble salts. Lahontan soils (Aquic Xerofluvents), Wabuska soils (Aeric Halaquepts), and Rusty soils (Typic Natrargids) are examples of soils that formed in these areas.

The gently sloping to strongly sloping alluvial fans bordering basin fill areas in Smith, Mason, and Churchill Valleys and Carson Plains have a relatively smooth, undissected surface. The soils that formed on these fans are subject to medium runoff and are well drained. Cleaver soils (Typic Durargids), Malpais soils (Typic Camborthids), and Perazzo soils (Typic Haplargids) are examples of soils in these areas.

The nearly level flood plains and low terraces along the Walker River in Mason and Smith Valleys and the Carson River on the Carson Plains and in Churchill Valley have a high water table. Runoff is very slow, and some of the soils are subject to flooding. The soils in these areas support dense stands of meadow vegetation that has contributed a large amount of organic matter to the soils, producing a dark-colored A horizon. Some of these soils have excess soluble salts in the upper part. Dia, Dithod, and East Fork soils (Fluvaquentic Haploxerolls) are examples of these soils.

Biological Forces

Plants, animals, insects, and microflora are important biological forces that affect soil formation in this survey area. Although animals such as badgers and ground squirrels and insects such as cicadas have had some effect on soil development, plants appear to have had the major biological influence on the development of soils in the area.

The vegetation in the area has been a particularly important factor in reducing erosion. It has helped to maintain the stability of the land surfaces so that normal soil formation could take place.

Because of climatic differences, plants vary considerably in kinds and amounts as elevation increases. On lake plains, terraces, and alluvial fans at low elevations, the main plants are drought- and salt-tolerant shrubs. Because of the scarcity of available moisture, the plants cover only a small part of the surface. They add little organic matter to the soils and provide little protection from the wind and sun. Salt-tolerant shrubs also tend to recycle salts from the deeper layers of the soil to the surface layer.

On the flood plains, where drainage is restricted, the dense growth of meadow vegetation has supplied the organic matter that gives soils such as those of the East Fork series (Fluvaquentic Haploxerolls) a dark-colored A horizon.

Alluvial fans, terraces, and foothills at higher elevations, primarily in the western part of the area, support a plant cover of shrubs and grasses. The density

of plants is somewhat higher, soluble salts are leached to a greater depth in the profile, and a moderate amount of organic matter has accumulated in the A horizon.

The mountainous areas support more dense stands of shrubs, grasses, and, in some places, trees. Because of the more abundant vegetation, the A horizon in the soils in these areas is thick, is high in content of organic matter, and is dark in color.

Parent Material

Parent material is the weathered rock or unconsolidated material from which soils form. The hardness, grain size, and porosity of the parent material and its mineralogic and chemical composition greatly influence soil formation. The parent material in the survey area is mainly intrusive and extrusive volcanic rock, sedimentary rock, colluvium, alluvium, lacustrine sediment, and eolian material, including volcanic ash and sand. Minor amounts of metasedimentary and metavolcanic rocks are common in localized areas.

The volcanic rock includes basalt, andesite, rhyolite, and granitic rock. The soils in the desert and on the Pine Nut Mountains, Singatse and Sweetwater Ranges, and Pine Grove Hills formed in material derived from volcanic rock. The material weathered from these rocks also is a component of the colluvium, alluvium, and basin fill material in adjacent valleys. The alluvium in the valleys throughout the area is strongly influenced by granitic rock from the Sierra Nevada Range. Volcanic rock contains appreciable quantities of minerals that weather to clay. Soils that formed in material derived from the more siliceous rock, particularly tuff, commonly have silica-cemented layers. Because the material derived from volcanic rock commonly weathers to clay, most soils on sufficiently stable landforms that formed in this material over long periods of time have an argillic horizon. Cagle soils (Aridic Argixerolls), Loomer soils (Lithic Argixerolls), Lapon soils (Xerollic Durargids), and Surgem soils (Xerollic Haplargids) are examples of these soils.

Colluvium has accumulated on steep mountainsides as a result of gravitational forces. The colluvium generally is poorly sorted, has many rock fragments, and has minerals that weather to clay. Because many of the colluvial landscapes are not stable, the soils in these areas do not have an argillic horizon. Drit soils (Pachic Haploxerolls) are examples of such soils.

Late Tertiary sedimentary rock occurs primarily in the Churchill Valley area and along the foothills of the Pine Grove Hills. This bedrock consists of older alluvium and lakebed deposits containing interbedded tuffaceous shale, diatomaceous shale, siltstone, sandstone, and conglomerate. Most of the soils that formed in material derived from this rock contain rock fragments and minerals that weather to clay. Vylach soils (Haplic Durargids) and Ravenell soils (Xerollic Haplargids) are examples of soils that are on old, stable surfaces and that have an argillic horizon. Celeton and Weena soils (Typic Torriorthents) are examples of shallow, undeveloped soils on unstable surfaces that do not have an argillic horizon.

Alluvium derived from various kinds of rock and deposited on fan piedmonts and alluvial fans is mostly loamy and has gravel, cobbles, and stones. It is porous and contains minerals that weather to clay and soluble silica that causes cementation and forms a duripan. Cleaver soils (Typic Durargids) and Fulstone soils (Abruptic Xerollic Durargids) are examples of soils on stable alluvial fans that have an argillic horizon and a duripan.

Alluvium deposited on alluvial flats and flood plains consists of sandy, silty, and clayey material. Soluble salts are common in some of the soils that formed in this material. Although the material contains weatherable minerals, the soils are young and exhibit little soil development. Lahontan soils (Aquic Xerofluvents), Wabuska soils (Aeric Halaquepts), and Dithod soils (Fluvaquentic Haploxerolls) are examples of these soils.

Volcanic ash and eolian material presumed to have been deposited during the Mazama ashfalls have probably been instrumental as a source of soluble silica for the formation of durinodes and duripans in the soils of the area. Volcanic ash from the Mono ashfalls has been preserved as thin strata in some of the soils on alluvial fans in the southeastern part of the area and on adjacent stream terraces and flood plains along the Walker River. Examples of these soils are Malpais soils (Typic Camborthids) on alluvial fans and Dia soils (Fluvaquentic Haploxerolls) and Fallon soils (Aquic Xerofluvents) on stream terraces and flood plains.

Sandy eolian material is limited in the area. It is mainly in Campbell and Churchill Valleys and in small areas east of Mason Valley. Sandy soils such as those of the Hawsley series (Typic Torripsamments) formed on stabilized and less active sand sheets associated with alluvial fans and beach terraces. Soils such as Isolde soils (Typic Torripsamments) formed on semistabilized dunes and dunes superimposed over beach terraces.

Time

Time is required for the formation of soil horizons. The amount of time required depends upon the other soil-forming factors. Thickness and other characteristics of the horizons reflect the relative age of soils. The age, or expression of the soil horizons, is a reflection of the amount of weathering of parent material, a result of the interaction of moisture, temperature, and biological activity over time.

The soils in this survey area range from a few years to possibly a few hundred thousand years of age or more. This range in age is a major reason for the many kinds of soil in the area.

The influence of time and other soil-forming factors is not well understood by soil scientists and geologists working in this field. Many soil scientists and some geologists feel that the weathering of parent material and development of soil profiles have been essentially continuous, with little change in rate throughout Quaternary time (*12, 13, 16, 19*).

Recently, geologists concerned with differentiating Quaternary deposits have proposed that soil development has not proceeded continuously at the same rate but has taken place intermittently at rapid rates (*9, 10, 11, 15*). These geologists have developed the technique of mapping soil stratigraphic units that use soil profiles as stratigraphic markers to differentiate and correlate Quaternary deposits. The concept of soil development is based on the assumption that profiles formed in response to infrequent combinations of climatic factors that induced minimal erosion and deposition and a greatly accelerated rate of chemical weathering.

Although disagreements exist in regard to the relative influences of time and other soil-forming factors, the concept of intermittent soil formation has been supported by numerous studies and provides a practical technique to discuss the age of the soils in the survey area in relation to geologic climatic units in Quaternary time. For the purposes of this discussion, time-stratigraphic names as set forth by Birkeland (*3*) are used. These are Holocene, Late Wisconsin, Middle Wisconsin, Early Wisconsin, and pre-Wisconsin.

The diagnostic properties of subsurface horizons and the strength of expression of the horizons provide general clues to the age of the soils in the area (*17*). Important diagnostic subsurface horizons present in soils in the area include argillic, natric, and cambic horizons and horizons exhibiting silica cementation.

Prominent argillic horizons in this area generally occur only in soils that formed primarily during Wisconsin and pre-Wisconsin (*4, 5, 18*) time. With increasing age and constancy of other conditions, argillic horizons become finer in texture, become somewhat thicker, and tend to develop abrupt upper boundaries. Weakly expressed, thin argillic horizons may have formed during very Late Wisconsin or early Holocene time.

Natric horizons are argillic horizons that formed under the influence of a high content of exchangeable sodium. The effect of sodium on the dispersion of clay may tend to accelerate the rate of formation of argillic horizons. This is not believed to be significant, however, except in weakly expressed natric horizons that formed on Holocene surfaces. Following earlier development as argillic horizons, prominent natric horizons may have developed their present characteristics as a result of the addition of sodium from eolian deposits. This is believed to be an important process that affects the physical and chemical properties of soils in the area.

The volcanic glass in sediment derived from pyroclastic material and in eolian deposits of volcanic ash is a source of silica that causes the formation of a duripan and durinodes in many of the soils in the survey area. A duripan is a massive, platy horizon cemented with silica and, in most places, with accessory calcium carbonate. Because of the association of duripans with prominent argillic horizons, massive duripans capped with silica- and lime-cemented laminar layers are probably the oldest kind of duripan in the area and are of early Wisconsin to pre-Wisconsin age. A platy or laminated duripan tends to develop in loamy material. A thin duripan that is overlain by laminar layers, by a weak, discontinuous, silica-cemented layer, or by durinodes has apparently developed in Holocene age loess or loamy alluvium generally deposited on gravelly material. These forms of silica cementation apparently are capable of forming during a relatively short period of time and are probably less than 6,000 years old.

The youngest soils in the area are those that formed in recently aggraded material or in material recently exposed by erosion. Included among these soils are Fallon soils (Aquic Xerofluvents) and Juva soils (Typic Torrifluvents) that formed in recent alluvium; shallow Celeton soils (Typic Torriorthents) that formed in material weathered from Tertiary sediment on uplands where geologic erosion has been active; and Isolde soils (Typic Torripsamments) that formed in eolian material on semistabilized sand dunes.

Somewhat older soils are those that formed in alluvium on wet flood plains, in slowly aggrading material on inset fans, and in material on relatively recently eroded mountainsides. These soils have been stable long enough to have accumulated organic matter and formed a dark-colored A horizon. They do not have an argillic, natric, cambic, or calcic horizon, a duripan, or durinodes. They are probably less than about 1,000 years old. Rose Creek soils (Fluvaquentic Haploxerolls) are examples of soils that formed in material on wet flood plains. Dithod soils (Fluvaquentic Haploxerolls) are examples of soils that formed in material on inset fans and wet flood plains. Shallow Nall soils (Aridic Haploxerolls) and Hartig Variant soils (Lithic Cryoborolls) are examples of soils that formed in material on mountainsides.

The soils in the survey area that formed in alluvium and have developed a subsurface horizon containing durinodes or a horizon that is very weakly silica-cemented are possibly slightly older than the soils that have developed a dark-colored A horizon as their only diagnostic feature. These soils are on alluvial flats. They formed in salt- and alkali-affected material containing appreciable amounts of volcanic ash. The content of soluble silica and the alkalinity probably contributed to relatively rapid formation of durinodes and incipient silica cementation. Obanion soils (Aeric Halaquepts) are examples of soils that have incipient silica cementation.

Stable Holocene land surfaces less than about 10,000 years old and more than 2,000 years old are extensive in the survey area. The soils that formed in material on these surfaces have a cambic horizon that formed mainly in calcareous sediment. Original stratification is absent, and carbonates have been removed from the upper horizons and redeposited in the underlying ones (*6, 8*). The cambic horizons in the survey area and in other areas in northern Nevada are generally thought to be less than 10,000 years old and possibly less than 7,000 years. This age has been determined mostly as a result of soil mapping in areas located below the last high stage of Pleistocene Lake Lahontan (*7, 9, 10, 11*). Toulon soils (Typic Camborthids) are examples of soils on alluvial lake plain terraces and bars of beach plains that have a cambic horizon. Haybourne soils (Xerollic Camborthids) have a cambic horizon and are on alluvial fans. Hartig soils (Aridic Haploxerolls) and Drit soils (Pachic Haploxerolls) have a cambic horizon and are on mountainsides.

The landscapes in some areas are less stable and have been stripped by erosion during late Wisconsin time, and a relict duripan has been exposed. During early to middle Holocene, a shallow layer of loess and loamy alluvium derived from material on the surrounding land surfaces was deposited on these relict subsurface horizons. Soil development in the upper part of the alluvium has been minimal. Otomo soils (Typic Durorthids) on fan piedmonts and Osobb soils (Typic Durorthids) on foothills are examples of these soils.

Soils that have a relict argillic horizon are believed to be of early Holocene to pre-Wisconsin age. About 61 percent of the series in the survey area includes examples of these soils. These soils occur extensively on mountains, plateaus, foothills, alluvial fans, terraces, and dunes. The fact that extensive areas of these kinds of soil exist today is evidence that few if any major erosional and depositional events have taken place since the late Pleistocene.

During early Holocene, as the level of Lake Lahontan receded, dunes and sand sheets were formed from sandy eolian material. As these landscapes stabilized and short periods of favorable climate prevailed, the soils that formed in this material developed a thin, very weakly expressed argillic horizon. Patna soils (Typic Haplargids) are examples of these soils.

Stable Late Wisconsin or early Holocene land surfaces are not believed to be extensive in this area. Soils that have formed in material on these surfaces have a thin, weakly expressed or minimal argillic or natric horizon. Saralegui soils (Xerollic Haplargids) have a minimal argillic horizon and developed in material on alluvial fan skirts. Upon recession of the earlier stages of Lake Lahontan, lake terraces were exposed to the soil-forming processes. Appian soils (Typic Natrargids) are examples of soils on lake terraces that have a minimal natric horizon.

Stable early Late Wisconsin or Middle Wisconsin land surfaces are extensive in the survey area. The soils on these surfaces have a dominantly fine-loamy or loamy-skeletal argillic or natric horizon. Wedertz soils (Durixerollic Haplargids) are examples of soils that have an argillic horizon and are on high, old lake terraces. Pizene soils (Typic Natrargids) are examples of soils that have a natric horizon and are on older alluvial fans. Olac soils (Lithic Xerollic Haplargids) are examples of soils that have an argillic horizon and formed in volcanic residuum. Devils soils (Aridic Argixerolls) are examples of soils on plateaus, and Ister soils (Aridic Argixerolls) are examples of soils on mountainsides.

During this same period, thin and moderately thick duripans formed in some soils on the older landscapes in the area. Wellsed soils (Xerollic Durargids) are examples of these soils on alluvial fans. Dalzell soils (Haploxerollic Nadurargids) are examples of these soils on high, older lake terraces. Nemico soils (Typic Nadurargids) are examples of soils on foothills and plateaus that have a duripan overlying bedrock.

Stable Early Wisconsin or early Middle Wisconsin land surfaces are also extensive. These soils have a well developed argillic horizon. They are on older land surfaces where the original subsurface horizon has neither been stripped by erosion nor deeply buried by sediment. Tenpin series (Xerollic Paleargids) have a clayey-skeletal argillic horizon, and Smedley soils (Haplic Durargids) have a clayey argillic horizon and a thick duripan and are on old alluvial fans. Nemico soils (Typic Nadurargids) have a clayey argillic horizon and a shallow, thin duripan overlying bedrock and are on plateaus. Zephan soils (Xerollic Haplargids) have a clayey-skeletal argillic horizon, formed in volcanic residuum, and are on foot slopes. Cagle soils (Aridic Argixerolls) have a clayey argillic horizon, formed in residuum, and are on mountainsides.

Stable surfaces from the earliest part of Early Wisconsin and from pre-Wisconsin age are moderately extensive in this area. These surfaces have been deeply dissected and are limited to alluvial fan remnants and plateau remnants. Because of the relative stability of the land surfaces since dissection, the soils that developed on these remnants are considered to be the oldest in the area. Risue soils (Abruptic Durargids), Fulstone and Reno soils (Abruptic Xerollic Durargids), and Lunder soils (Abruptic Aridic Durixerolls) are examples of these soils on old alluvial fan remnants. Fulstone Variant soils (Abruptic Aridic Durixerolls) are examples of soils on plateau remnants. All of these soils generally have a thick, clayey argillic horizon and a thick duripan.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3.5
Low	3.5 to 5
Moderate	5 to 7.5
High	7.5

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a fragment.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural

class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons.

Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Durinodes. Weakly cemented to indurated nodules. The cement is presumably opal and microcrystalline forms of silica.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature; for example, fire that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Excess alkali (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Fan apron. A component landform comprised of a sheetlike mantle of relatively young alluvium covering part of an older fan piedmont (and occasionally an alluvial fan).

Fan collar. A component landform comprised of a thin, short, relatively young mantle of alluvium along the very upper margin of a major alluvial fan at a mountain front.

Fan Skirt. A major landform comprised of laterally coalescing, small alluvial fans that issue from gullies cut into, or are extensions of, inset fans of the fan piedmont and that merge along the toe slopes with the basin floor. Fan skirts are smooth or only slightly dissected and ordinarily do not comprise component landforms.

Fan remnant. A generic term for component landforms that are the remaining parts of various older fans that either have been dissected or partially buried.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of Vertisols—clayey soils having a high coefficient of expansion and contraction with changes in moisture content.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial melt water.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

A2 horizon. —A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hummocky. Refers to a landscape of hillocks, separated by low sags, having sharply rounded tops and steep sides. Hummocky relief resembles rolling or undulating relief, but the tops of ridges are narrower and the sides are shorter and less even.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet

and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Inset fan. A flood plain of commonly ephemeral stream that is confined between fan remnants, basin floor remnants, ballenas, or closely opposed fan toe slopes.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake in inches per hour is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Light textured soil. Sand and loamy sand.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Moraine (geology). An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Outwash, glacial. Stratified sand and gravel produced by glaciers and carried, sorted, and deposited by glacial melt water.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas,

many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Saprolite (soil science). Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces

on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium absorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity are—

	SAR
Slight	Less than 13:1
Moderate	13-30:1
Strong	More than 30:1

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial melt water. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-73 at Lahontan Dam, Nev.]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.1 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	44.7	23.2	34.4	63	4	51	.46	.04	.77	1	2.7
February---	50.4	27.7	39.1	69	10	97	.39	.04	.65	2	1.3
March------	55.8	31.6	43.7	77	16	162	.31	.04	.52	1	2.0
April------	63.7	38.1	50.9	85	25	342	.32	.00	.53	1	0.5
May--------	73.4	46.8	60.1	94	30	623	.54	.12	.88	2	0.2
June-------	82.6	54.9	68.8	100	37	864	.46	.05	.77	2	0.0
July-------	92.9	63.1	78.0	103	50	1,178	.24	.00	.43	1	0.0
August-----	90.9	61.0	76.0	102	44	1,116	.40	.00	.72	1	0.0
September--	81.6	52.2	66.9	96	34	807	.28	.00	.52	1	0.0
October----	69.6	42.3	36.0	69	26	496	.26	.00	.49	1	0.1
November---	55.2	31.6	43.4	74	16	150	.45	.07	.73	1	0.4
December---	45.9	24.2	35.1	62	5	45	.38	.04	.64	1	1.9
Year-----	67.2	41.4	54.3	103	-1	5,931	4.49	3.06	5.86	15	9.1

[Recorded in the period 1957-75 at Topaz Lake, Nev.]

Month	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days[1]	Average	Less than--	More than--	Average number of days with 0.1 inch or more	Average snowfall
January---	47.7	17.8	32.8	68	-10	30	1.64	.30	2.68	3	6.3
February--	52.2	22.0	37.1	71	3	44	1.29	.16	2.11	2	4.6
March-----	56.1	24.8	40.4	76	8	100	1.05	.20	1.70	3	1.9
April-----	62.0	28.3	45.2	83	13	200	.49	.07	.81	2	2.3
May-------	72.1	36.5	54.3	90	21	443	.83	.10	1.39	2	0.5
June------	81.5	43.9	62.7	99	30	681	.66	.09	1.10	2	0.0
July------	90.5	49.3	69.9	101	36	927	.63	.00	1.11	1	0.0
August----	89.3	47.3	68.3	99	33	877	.55	.00	.96	2	0.0
September-	81.2	39.4	60.4	95	22	612	.40	.01	.67	1	0.0
October---	70.0	30.5	50.3	88	13	319	.42	.00	.73	1	0.0
November--	56.7	23.4	40.1	75	5	72	1.07	.22	1.75	3	2.0
December--	48.9	18.2	33.5	67	-5	14	1.09	.33	1.70	3	3.8
Year----	67.4	31.8	49.6	101	-12	4,319	10.12	7.30	12.95	25	21.4

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

[Recorded in the period 1951-75 at Yerington, Nev.]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.1 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January---	47.3	18.2	32.8	69	-6	46	.60	.19	.92	2	2.6
February--	53.5	22.0	37.7	73	4	71	.53	.05	.88	1	1.3
March-----	59.1	25.7	42.4	78	8	127	.35	.06	.58	1	2.1
April-----	66.0	31.0	48.5	86	15	272	.37	.00	.64	1	0.4
May-------	75.3	39.1	57.3	93	23	536	.85	.13	1.41	2	0.4
June------	84.0	46.1	65.1	100	31	753	.61	.11	1.00	2	0.0
July------	92.7	52.0	72.4	102	38	1,004	.31	.04	.52	1	0.0
August----	90.8	48.7	69.8	101	35	924	.35	.00	.66	1	0.0
September-	83.6	41.2	62.4	95	26	672	.31	.00	.57	1	0.0
October---	71.2	32.0	51.6	89	14	365	.29	.00	.54	1	0.3
November--	56.6	23.4	40.0	75	5	92	.49	.10	.79	1	0.9
December--	47.4	17.5	32.5	65	-3	21	.54	.09	.88	2	1.8
Year----	69.0	33.1	51.0	102	-9	4,883	5.60	4.27	6.85	16	9.8

[1]A growing degree day is an index of the amount of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-73 at Lahontan Dam, Nev.]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 23	May 9	May 19
2 years in 10 later than--	April 12	May 2	May 14
5 years in 10 later than--	March 23	April 17	May 3
First freezing temperature in fall:			
1 year in 10 earlier than--	October 31	October 20	September 29
2 years in 10 earlier than--	November 5	October 25	October 6
5 years in 10 earlier than--	November 13	November 3	October 18

[Recorded in the period 1957-75 at Topaz Lake, Nev.]

Probability	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	June 22	July 1	July 30
2 years in 10 later than--	June 3	June 10	July 7
5 years in 10 later than--	April 26	May 2	May 23
First freezing temperature in fall:			
1 year in 10 earlier than--	August 18	August 5	July 15
2 years in 10 earlier than--	September 7	August 27	August 8
5 years in 10 earlier than--	October 16	October 6	September 22

TABLE 2.--FREEZE DATES IN SPRING AND FALL--Continued

[Recorded in the period 1951-75 at Yerington, Nev.]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 12	June 4	June 13
2 years in 10 later than--	May 5	May 27	June 6
5 years in 10 later than--	April 22	May 13	May 23
First freezing temperature in fall:			
1 year in 10 earlier than--	September 25	September 14	August 22
2 years in 10 earlier than--	October 2	September 21	August 31
5 years in 10 earlier than--	October 16	October 4	September 16

TABLE 3.--GROWING SEASON

[Recorded in the period 1951-73 at Lahontan Dam, Nev.]

Probability	Length of growing season if daily minimum temperature is-- Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	206	176	146
8 years in 10	217	185	154
5 years in 10	237	201	169
2 years in 10	257	218	183
1 year in 10	286	227	191

[Recorded in the period 1957-73 at Topaz Lake, Nev.]

9 years in 10	134	119	62
8 years in 10	140	124	75
5 years in 10	153	136	99
2 years in 10	166	148	125
1 year in 10	176	156	143

[Recorded in the period 1951-75 at Yerington, Nev.]

9 years in 10	142	112	79
8 years in 10	154	123	91
5 years in 10	177	143	115
2 years in 10	199	164	140
1 year in 10	211	175	152

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
101	Ackley sandy loam, 0 to 2 percent slopes	1,770	0.1
102	Ackley gravelly sandy loam, 2 to 4 percent slopes	1,975	0.2
103	Ackley-Ackley Variant complex	677	0.1
121	Appian loamy sand	3,062	0.2
122	Appian loam	229	*
123	Appian-Wabuska complex	2,482	0.2
124	Appian-Delp complex, 0 to 15 percent slopes	2,157	0.2
141	Bango sandy loam	1,021	0.1
142	Bango very gravelly loamy sand	586	*
151	Bluewing Variant clay, 2 to 8 percent slopes	740	0.1
161	Bluewing very gravelly sand, 2 to 8 percent slopes	1,826	0.1
162	Bluewing very stony loamy sand, 2 to 8 percent slopes	267	*
171	Cagle-Nosrac association	18,388	1.5
181	Charlebois loam, 0 to 2 percent slopes	1,457	0.1
182	Charlebois loam, 2 to 4 percent slopes	407	*
184	Charlebois gravelly loam, 0 to 2 percent slopes	601	*
185	Charlebois sandy loam, 0 to 2 percent slopes	862	0.1
191	Chill association	7,427	0.6
201	Cleaver loamy fine sand, 2 to 8 percent slopes	967	0.1
202	Cleaver gravelly sandy loam, 2 to 4 percent slopes	22,310	1.8
204	Cleaver stony sandy loam, 4 to 15 percent slopes	23,377	1.9
206	Cleaver very stony loam, 2 to 4 percent slopes	2,170	0.2
207	Cleaver very stony loam, 15 to 30 percent slopes	5,581	0.5
208	Cleaver association, sloping	20,353	1.7
209	Cleaver association, moderately steep	3,488	0.3
221	Dalzell sand, 2 to 4 percent slopes	229	*
223	Dalzell clay loam, 0 to 2 percent slopes	872	0.1
231	Delp-Lox association	6,147	0.5
232	Delp-Orizaba complex, 0 to 15 percent slopes	719	0.1
233	Delp sand, 2 to 15 percent slopes	287	*
241	Devada-Rock outcrop complex, 4 to 15 percent slopes	927	0.1
242	Devada-Rock outcrop association	3,633	0.3
251	Dia loam	1,443	0.1
252	Dia clay loam	435	*
253	Dia clay loam, wet	1,550	0.1
254	Dia-Dithod complex	6,788	0.6
255	Dia-Dithod complex, ponded	1,721	0.1
256	Dia-Sagouspe complex	1,703	0.1
261	Dithod loam	1,187	0.1
262	Dithod loam, clay substratum	1,555	0.1
263	Dithod clay loam, wet	191	*
264	Dithod loam, saline-alkali	4,436	0.4
265	Dithod clay loam	4,620	0.4
268	Dithod clay loam, wet, saline-alkali	819	0.1
269	Dithod-Sagouspe-Dia complex	5,514	0.4
271	East Fork loam	1,808	0.1
272	East Fork loam, occasionally flooded	360	*
274	East Fork clay loam	6,606	0.5
275	East Fork clay loam, saline-alkali	2,073	0.2
276	East Fork clay loam, clay substratum	1,005	0.1
277	East Fork gravelly clay loam	663	0.1
291	Fallon sand	988	0.1
292	Fallon fine sandy loam	6,867	0.6
293	Fallon fine sandy loam, frequently flooded	5,047	0.4
294	Fallon fine sandy loam, saline-alkali	2,185	0.2
295	Fallon sandy loam, ponded	1,934	0.2
301	Fernley loamy sand	525	*
302	Fernley loamy sand, drained	442	*
311	Fulstone cobbly loam, 2 to 8 percent slopes	11,953	1.0
312	Fulstone cobbly loam, 8 to 15 percent slopes	2,683	0.2
313	Fulstone association	7,009	0.6
314	Fulstone-Reno association	8,101	0.7
315	Fulstone-Stucky association	4,679	0.4
321	Haybourne loam	3,378	0.3
331	Hocar-Rock outcrop complex, 15 to 30 percent slopes, eroded	483	*
341	Holbrook very stony sandy loam, 4 to 15 percent slopes	829	0.1
343	Holbrook-Hotsprings complex, 2 to 15 percent slopes	2,669	0.2
344	Holbrook-Shree association	1,785	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
345	Holbrook Variant-Rock outcrop complex, 30 to 75 percent slopes	341	*
352	Hotsprings loamy coarse sand, 2 to 8 percent slopes	1,503	0.1
353	Hotsprings gravelly loamy coarse sand, 0 to 2 percent slopes	1,762	0.1
354	Hotsprings-Holbrook complex, 2 to 4 percent slopes	1,097	0.1
361	Hough sand, 0 to 2 percent slopes	8,523	0.7
371	Hyloc-Ister association	19,996	1.6
372	Hyloc-Ister-Rock outcrop association	35,198	2.9
391	Juva gravelly silt loam, 0 to 2 percent slopes	1,992	0.2
392	Juva gravelly fine sandy loam, 2 to 4 percent slopes	1,198	0.1
401	Lahontan silty clay loam, strongly saline-alkali	16,634	1.4
411	Lapon extremely stony loam, 15 to 30 percent slopes	13,330	1.1
412	Lapon-Rubble land-Rock outcrop association	47,225	3.8
413	Lapon-Fulstone-Old Camp association	2,989	0.2
441	Lunder very cobbly loam, 2 to 15 percent slopes	7,208	0.6
451	Obanion loamy coarse sand	988	0.1
452	Obanion sandy loam, drained	1,202	0.1
453	Obanion sandy loam, saline-alkali	783	0.1
462	Olac-Rock outcrop complex, 8 to 15 percent slopes	4,918	0.4
464	Olac-Rock outcrop complex, 15 to 50 percent slopes	1,118	0.1
466	Olac-Ister-Rock outcrop association	1,138	0.1
471	Oppio-Nosrac association	5,747	0.5
481	Orizaba sandy loam	4,116	0.3
482	Orizaba loam, strongly saline-alkali	2,203	0.2
483	Orizaba loam, drained	2,359	0.2
484	Orizaba silty clay loam	4,840	0.4
486	Orizaba-Delp association	504	*
491	Otomo gravelly sandy loam, 4 to 15 percent slopes	3,110	0.3
501	Parran silty clay loam	1,206	0.1
511	Patna fine sand, 4 to 15 percent slopes	2,901	0.2
512	Patna fine sand, 15 to 30 percent slopes	996	0.1
514	Patna loamy sand, silty substratum, 0 to 2 percent slopes	1,341	0.1
516	Patna sand, 0 to 4 percent slopes	6,408	0.5
517	Patna-Hough-Playas association	1,244	0.1
518	Patna sandy loam, occasionally flooded, 0 to 2 percent slopes	2,578	0.2
519	Patna loam, 0 to 2 percent slopes	739	0.1
521	Pizene sandy loam, 0 to 4 percent slopes	1,995	0.2
522	Pizene-Orizaba complex	1,834	0.1
523	Pizene loam, 0 to 2 percent slopes	1,007	0.1
524	Pizene loamy fine sand, 0 to 2 percent slopes	496	*
531	Perazzo gravelly loam, 0 to 2 percent slopes	3,799	0.3
532	Perazzo gravelly loam, 2 to 4 percent slopes	15,694	1.3
534	Perazzo very gravelly sandy loam, 8 to 15 percent slopes	1,536	0.1
535	Perazzo very stony sandy loam, 4 to 8 percent slopes	971	0.1
541	Uripnes-Chill-Rock outcrop association	12,984	1.1
551	Rawe gravelly sandy loam, 4 to 15 percent slopes	12,402	1.0
552	Rawe complex, 2 to 4 percent slopes	3,966	0.3
553	Rawe-Malpais association	14,212	1.2
561	Rebel sandy loam, 0 to 2 percent slopes	1,391	0.1
571	Reno gravelly sandy loam, 2 to 4 percent slopes	1,274	0.1
572	Reno cobbly sandy loam, 4 to 15 percent slopes	3,180	0.3
581	Risue extremely stony loam, 8 to 15 percent slopes	3,099	0.3
582	Risue gravelly loam, 0 to 8 percent slopes	2,252	0.2
591	Rose Creek loam	1,356	0.1
601	Rusty sand, 0 to 2 percent slopes	3,009	0.2
603	Rusty-Isolde complex, 0 to 15 percent slopes	1,584	0.1
604	Rusty-Playas complex, 0 to 2 percent slopes	1,628	0.1
611	Sagouspe sandy loam	690	0.1
612	Sagouspe sandy loam, saline-alkali	317	*
613	Sagouspe loam, wet	272	*
621	Saralegui loamy sand, 0 to 4 percent slopes	7,995	0.6
623	Saralegui loamy sand, 4 to 8 percent slopes	1,657	0.1
625	Saralegui sandy loam, 0 to 2 percent slopes	544	*
626	Saralegui loamy sand, undulating	1,738	0.1
627	Saralegui Variant loamy sand	1,725	0.1
631	Singatse very gravelly sandy loam, 8 to 15 percent slopes	2,066	0.2
632	Singatse-Rock outcrop complex, 30 to 75 percent slopes	1,894	0.2
633	Singatse-Theon association	22,082	1.8

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
641	Tocan sandy loam, 0 to 2 percent slopes	3,591	0.3
642	Tocan sandy loam, 2 to 4 percent slopes	5,056	0.4
643	Tocan gravelly sandy loam, 4 to 8 percent slopes	1,770	0.1
644	Tocan-Yerington complex, 0 to 4 percent slopes	4,217	0.3
651	Theon very gravelly sandy loam, 8 to 30 percent slopes	69,448	5.6
652	Theon-Olac association	54,776	4.3
653	Theon-Lapon-Olac association	22,395	1.8
654	Theon-Rock outcrop-Old Camp complex, 50 to 75 percent slopes	39,714	3.2
655	Theon-Yerington association	7,674	0.6
661	Isolde fine sand, 0 to 15 percent slopes	4,587	0.4
662	Isolde-Patna complex, 0 to 15 percent slopes	1,746	0.1
663	Isolde fine sand, slightly saline-alkali, 2 to 15 percent slopes	1,096	0.1
671	Toulon gravelly loam, 0 to 4 percent slopes	263	*
681	Yerington Variant loam, 2 to 4 percent slopes	944	0.1
691	Ultra gravelly fine sandy loam	2,163	0.2
701	Veta very gravelly sandy loam, 2 to 8 percent slopes	6,396	0.5
702	Veta very gravelly sandy loam, occasionally flooded, 2 to 4 percent slopes	2,886	0.2
704	Veta very cobbly sandy loam, 8 to 15 percent slopes	1,192	0.1
711	Vylach-Weena association	22,797	1.9
721	Wabuska loamy sand	411	*
722	Wabuska loam	1,084	0.1
723	Wabuska loam, moderately saline-alkali	2,264	0.2
724	Wabuska loam, strongly saline-alkali	4,298	0.3
725	Wabuska-Delp-Playas complex, 0 to 15 percent slopes	3,902	0.3
731	Hunewill sandy loam, 4 to 8 percent slopes	2,519	0.2
732	Hunewill stony loam, 8 to 15 percent slopes	953	0.1
733	Hunewill stony loam, 15 to 30 percent slopes	1,445	0.1
734	Hunewill very gravelly sandy loam, 2 to 8 percent slopes	258	*
735	Hunewill very gravelly sandy loam, 8 to 15 percent slopes	517	*
741	Wedertz-Wellington-Saralegui complex, 0 to 2 percent slopes	8,327	0.7
742	Wedertz-Wellington coarse sandy loams, 2 to 4 percent slopes	3,069	0.2
743	Wedertz-Wellington coarse sandy loams, 4 to 8 percent slopes	10,738	0.9
744	Wedertz-Saralegui-Wellington complex, 8 to 15 percent slopes	3,472	0.3
746	Wellsed-Wedlar association	1,606	0.1
751	Malpais gravelly loamy sand, 2 to 8 percent slopes	17,394	1.4
753	Malpais cobbly sandy loam, 2 to 4 percent slopes	4,574	0.4
754	Malpais complex, 2 to 15 percent slopes	8,561	0.7
755	Malpais-Yerington complex, 4 to 8 percent slopes	5,345	0.4
761	Yerington loamy fine sand, 0 to 2 percent slopes	4,476	0.4
762	Yerington loamy fine sand, 2 to 4 percent slopes	14,507	1.2
763	Yerington loamy fine sand, 4 to 8 percent slopes	3,266	0.3
764	Yerington loamy fine sand, 8 to 15 percent slopes	1,034	0.1
765	Yerington gravelly sandy loam, 0 to 2 percent slopes	604	*
766	Yerington gravelly sandy loam, 2 to 4 percent slopes	7,164	0.6
767	Yerington gravelly sandy loam, 4 to 8 percent slopes	4,872	0.4
771	Biddleman association	1,716	0.1
781	Celeton very cobbly sandy loam, 8 to 30 percent slopes	2,416	0.2
782	Weena-Malpais association	12,308	1.0
791	Flex-Duco association	14,277	1.2
792	Pirouette-Osobb-Rock outcrop association	15,328	1.2
793	Pirouette extremely stony very fine sandy loam, 15 to 30 percent slopes	7,585	0.6
802	Loomer-Zephan-Olac association	3,393	0.3
803	Loomer association	3,744	0.3
811	Trid-Drit association	620	0.1
812	Trid-Roloc-Drit association	2,228	0.2
821	Badland	937	0.1
822	Dumps, mine	1,341	0.1
823	Gypsum land	289	*
824	Pits, gravel	293	*
825	Pits, mine	735	0.1
826	Playas	3,391	0.3
827	Slickens	1,335	0.1
831	Ister-Hyloc-Lunder association	15,999	1.3
841	Bradshaw-Hartig association	7,831	0.6
851	Tenpin-Shree association	10,511	0.9
861	Shree very gravelly loam, 4 to 8 percent slopes	4,571	0.4
871	Nall-Luppino-Hotsprings association	7,326	0.6
881	Ravenell Variant-Devils Variant association	5,471	0.4

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
891	Berit-Shoken association, moderately steep	1,721	0.1
892	Berit-Shoken association, steep	5,085	0.4
893	Berit-Saralegui association	1,019	0.1
911	Fulstone Variant-Devils-Glean association	2,314	0.2
921	Glean-Devils association	4,446	0.4
922	Glean-Devils-Rock outcrop association	3,375	0.3
923	Glean-Ticino-Hartig association	791	0.1
932	Shoken-Rock outcrop association	2,838	0.2
951	Koontz-Ravenell-Haar association	6,134	0.5
961	Luppino gravelly sandy loam, 8 to 15 percent slopes	503	*
971	Minneha-Drit-Rock outcrop association	354	*
972	Minneha-Berit-Wile association	20,346	1.7
981	Ravenell very gravelly loam, 8 to 30 percent slopes	6,857	0.6
982	Ravenell-Haar-Rock outcrop association	13,961	1.1
991	Roloc-Drit association	511	*
1001	Rowel very cobbly sandy loam, 8 to 30 percent slopes	3,598	0.3
1002	Rowel-Rock outcrop association	1,780	0.1
1011	Smedley very gravelly sandy loam, 2 to 4 percent slopes	5,145	0.4
1012	Smedley stony sandy loam, 4 to 8 percent slopes	5,106	0.4
1013	Smedley association, sloping	1,533	0.1
1014	Smedley association, moderately steep	11,413	0.9
1021	Springmeyer sandy loam, 0 to 4 percent slopes	1,356	0.1
1031	Burnborough-Glean association	428	*
1041	Whichman-Ister-Rock outcrop association	12,269	1.0
1051	Zyzzi very gravelly sandy loam, 8 to 30 percent slopes	2,658	0.2
1072	Hawsley sand, 2 to 8 percent slopes	356	*
1073	Hawsley-Gamgee association	2,768	0.2
1074	Hawsley loamy fine sand, silty substratum, 0 to 2 percent slopes	709	0.1
1075	Hawsley-Playas complex	762	0.1
1081	Stucky extremely cobbly sandy loam, 8 to 15 percent slopes	1,785	0.1
1082	Stucky association	915	0.1
1083	Stucky-Hunewill-Veta association	897	0.1
1091	Glean Variant-Hartig Variant-Rubble land association	2,496	0.2
1103	Mirkwood-Nemico association	2,751	0.2
1110	Surgem-Olac-Cagle association	433	*
1121	Duco-Nosrac association	10,667	0.9
1131	Gamgee gravelly sand, 2 to 15 percent slopes	2,556	0.2
1141	Old Camp-Mirkwood-Nemico association	5,662	0.5
1142	Old Camp-Holbrook Variant association	310	*
1143	Old Camp-Reno Variant-Hyloc association	4,607	0.4
	Water areas	7,088	0.6
	Total	1,231,709	100.0

* Less than 0.1 percent.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil. Only the soils suited to crops and pasture are listed]

Soil name and map symbol	Alfalfa hay	Pasture	Wheat	Barley	Onions	Garlic	Irish potatoes
	Ton	AUM*	Bu	Bu	Sack	Cwt	Cwt
101----------------------- Ackley	5	8	65	75	450	130	350
102----------------------- Ackley	5	8	65	75	450	130	350
103----------------------- Ackley-Ackley Variant	5	8	58	72	---	---	---
121, 122------------------ Appian	1.5	3	---	30	---	---	---
123----------------------- Appian-Wabuska	2.7	4	---	63	---	---	---
141----------------------- Bango	3.5	4	70	90	---	---	---
142----------------------- Bango	3.5	4	70	90	---	---	---
181----------------------- Charlebois	6	12	130	125	500	100	400
182----------------------- Charlebois	6	12	130	125	500	100	400
184, 185------------------ Charlebois	6	12	130	125	500	100	400
221----------------------- Dalzell	3	8	---	40	---	---	---
223----------------------- Dalzell	3	8	---	40	---	---	---
251, 252------------------ Dia	3.5	4	100	100	300	80	300
253----------------------- Dia	2.0	6	---	---	---	---	---
254----------------------- Dia-Dithod	2.0	6	---	---	---	---	---
256----------------------- Dia-Sagouspe	3	4	---	---	---	---	---
261----------------------- Dithod	4.0	10	70	60	---	---	---
262----------------------- Dithod	6	12	130	125	500	100	400
263----------------------- Dithod	2	6	---	---	---	---	---
264----------------------- Dithod	2	3	---	---	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Alfalfa hay	Pasture	Wheat	Barley	Onions	Garlic	Irish potatoes
	Ton	AUM*	Bu	Bu	Sack	Cwt	Cwt
265: Dithod	4.0	10	70	60	---	---	---
268: Dithod	2	3	---	---	---	---	---
269: Dithod-Sagouspe-Dia	3.5	4	100	100	300	80	300
271: East Fork	4.5	12	---	73	500	100	---
272: East Fork	7	12	130	125	500	100	400
274: East Fork	4.5	12	---	73	500	100	---
276: East Fork	7	12	130	125	500	100	400
277: East Fork	4.5	12	---	73	500	100	---
291: Fallon	4	8	65	60	350	---	400
292: Fallon	3	6	65	40	350	---	400
294: Fallon	3	6	---	40	---	---	---
302: Fernley	1	2	20	20	---	---	---
311: Fulstone	2	4	---	---	---	---	---
321: Haybourne	4	9	---	63	---	---	---
343: Holbrook-Hotsprings	4.5	7	70	70	350	80	350
352, 353: Hotsprings	4.5	7	70	70	350	80	350
354: Hotsprings-Holbrook	---	7	---	57	---	---	---
361: Hough	5.0	8	58	72	---	---	---
391: Juva	5	8	65	75	450	130	350
392: Juva	5	8	65	75	450	130	350
452: Obanion	5	8	80	80	400	90	400
481: Orizaba	3.5	6	---	40	---	---	---
483: Orizaba	5	6	80	125	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Alfalfa hay	Pasture	Wheat	Barley	Onions	Garlic	Irish potatoes
	Ton	AUM*	Bu	Bu	Sack	Cwt	Cwt
484 Orizaba	3	6	---	40	---	---	---
514 Patna	3.5	3	50	52	---	---	---
518 Patna	3.5	3	50	52	---	---	---
519 Patna	5	8	58	70	440	120	320
521 Pizene	3.5	4	70	90	---	---	---
523, 524 Pizene	3	4	50	70	---	---	---
531 Perazzo	4.5	7	70	70	350	80	350
532 Perazzo	4.5	7	70	70	350	80	350
561 Rebel	---	15	50	60	---	---	---
591 Rose Creek	4	8	---	---	---	---	---
601 Rusty	3.5	3	50	52	---	---	---
611 Sagouspe	4.5	6	58	70	---	---	---
612 Sagouspe	1	2	20	20	---	---	---
613 Sagouspe	3.5	8	65	80	---	---	---
621, 623 Saralegui	4	11	---	53	---	---	---
625 Saralegui	4	11	50	53	---	---	---
626 Saralegui	4	11	---	53	---	---	---
627 Saralegui Variant	3	4	50	60	---	---	---
641 Tocan	3.5	3	50	50	---	---	---
642 Tocan	3.5	3	50	50	---	---	---
643 Tocan	3	3	40	40	---	---	---
644 Tocan-Yerington	3	6	50	60	---	---	---
721 Wabuska	4.0	6	80	100	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Alfalfa hay	Pasture	Wheat	Barley	Onions	Garlic	Irish potatoes
	Ton	AUM*	Bu	Bu	Sack	Cwt	Cwt
722----------------------- Wabuska	4.5	6	90	110	---	---	---
723----------------------- Wabuska	3.5	4	70	90	---	---	---
724----------------------- Wabuska	---	2	---	---	---	---	---
731----------------------- Hunewill	3.5	8	50	50	---	---	---
734, 735------------------ Hunewill	3.0	8	50	50	---	---	---
741----------------------- Wedertz-Wellington-Saralegui	4.5	8	70	70	350	80	350
742----------------------- Wedertz-Wellington	5	10	80	80	400	90	400
743----------------------- Wedertz-Wellington	4	8	40	40	---	---	---
761, 762------------------ Yerington	5	8	58	70	440	120	320
763----------------------- Yerington	4	8	55	65	410	110	300
765, 766------------------ Yerington	5	8	58	70	440	120	320
767----------------------- Yerington	4	8	55	65	410	110	300
1074---------------------- Hawsley	5	8	58	62	420	---	320

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES

[Only the soils that support rangeland vegetation suitable for grazing are listed. The range site name includes the precipitation zone, abbreviated p.z. It is followed by a numerical designation that includes the Major Land Resource Area number]

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
101, 102----------- Ackley	Loamy, 8-10" p.z. (26-16)-----	Favorable	800	Thurber needlegrass-----------	15
		Normal	600	Wyoming big sagebrush---------	15
		Unfavorable	400	Indian ricegrass--------------	10
				Bottlebrush squirreltail------	10
				Anderson peachbrush-----------	5
				Green ephedra-----------------	5
				Douglas rabbitbrush-----------	5
103*:					
Ackley------------	Loamy, 8-10" p.z. (26-16)-----	Favorable	800	Thurber needlegrass-----------	15
		Normal	600	Wyoming big sagebrush---------	15
		Unfavorable	400	Indian ricegrass--------------	10
				Bottlebrush squirreltail------	10
				Anderson peachbrush-----------	5
				Green ephedra-----------------	5
				Douglas rabbitbrush-----------	5
Ackley Variant----	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood--------------	25
		Normal	1,100	Basin big sagebrush-----------	20
		Unfavorable	1,000	Basin wildrye-----------------	15
				Spiny hopsage-----------------	5
				Shadscale---------------------	5
121--------------- Appian	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood--------------	20
		Normal	1,100	Basin big sagebrush-----------	20
		Unfavorable	1,000	Basin wildrye-----------------	15
				Creeping wildrye--------------	10
				Spiny hopsage-----------------	5
				Shadscale---------------------	5
123*:					
Appian------------	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood--------------	20
		Normal	1,100	Basin big sagebrush-----------	20
		Unfavorable	1,000	Basin wildrye-----------------	15
				Creeping wildrye--------------	10
				Spiny hopsage-----------------	5
				Shadscale---------------------	5
Wabuska-----------	Saline Bottom, 4-8" p.z. (27-6)	Favorable	2,000	Basin wildrye-----------------	40
		Normal	1,500	Inland saltgrass--------------	10
		Unfavorable	1,000	Alkali sacaton----------------	10
				Black greasewood--------------	10
				Rubber rabbitbrush------------	5
				Basin big sagebrush-----------	5
124*:					
Appian------------	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood--------------	20
		Normal	1,100	Basin big sagebrush-----------	20
		Unfavorable	1,000	Basin wildrye-----------------	15
				Creeping wildrye--------------	10
				Spiny hopsage-----------------	5
				Shadscale---------------------	5
Delp--------------	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	400	Indian ricegrass--------------	20
		Normal	300	Black greasewood--------------	20
		Unfavorable	200	Hairy horsebrush--------------	15
				Needleandthread---------------	10
				Fourwing saltbush-------------	5
141, 142----------- Bango	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass--------------	30
		Normal	200	Shadscale---------------------	20
		Unfavorable	100	Bottlebrush squirreltail------	10
				Bailey greasewood-------------	10
				Bud sagebrush-----------------	10
				Galleta-----------------------	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
151----------------- Bluewing Variant	Sodic Terrace, 4-8" p.z. (27-24)	Favorable	300	Shadscale	40
		Normal	150	Black greasewood	20
		Unfavorable	50	Indian ricegrass	10
				Fourwing saltbush	5
				Bud sagebrush	5
				Bailey greasewood	5
				Bottlebrush squirreltail	5
				Inland saltgrass	5
				Seepweed	5
161----------------- Bluewing	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
162----------------- Bluewing	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	20
		Unfavorable	100	Bailey greasewood	10
				Bud sagebrush	10
				Bottlebrush squirreltail	10
				Galleta	5
171*: Cagle.					
Noarac-------------	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	25
		Normal	950	Mountain brome	20
		Unfavorable	800	Mountain big sagebrush	15
				Antelope bitterbrush	10
				Basin wildrye	10
				Spike-fescue	5
191*: Chill------------- (8 to 15 percent slopes)	South Slope, 8-12" p.z. (26-11)	Favorable	800	Desert needlegrass	35
		Normal	700	Thurber needlegrass	10
		Unfavorable	600	Wyoming big sagebrush	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Littleleaf horsebrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
Chill------------- (15 to 30 percent slopes)	South Slope, 8-12" p.z. (26-11)	Favorable	800	Desert needlegrass	35
		Normal	700	Thurber needlegrass	10
		Unfavorable	600	Wyoming big sagebrush	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Littleleaf horsebrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
201----------------- Cleaver	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	50
		Normal	500	Fourwing saltbush	20
		Unfavorable	300	Needleandthread	10
				Bailey greasewood	10
				Nevada dalea	5
202----------------- Cleaver	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bud sagebrush	10
				Bottlebrush squirreltail	10
				Bailey greasewood	5
				Galleta	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
204, 206, 207: Cleaver	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	20
		Unfavorable	100	Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Bottlebrush squirreltail	5
208*:					
Cleaver (2 to 4 percent slopes)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bud sagebrush	10
				Bottlebrush squirreltail	10
				Bailey greasewood	5
				Galleta	5
Cleaver (4 to 15 percent slopes)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	20
		Unfavorable	100	Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Bottlebrush squirreltail	5
209*:					
Cleaver (15 to 30 percent slopes)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bud sagebrush	10
				Bottlebrush squirreltail	10
				Bailey greasewood	5
				Galleta	5
Cleaver (4 to 15 percent slopes)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bud sagebrush	10
				Bottlebrush squirreltail	10
				Bailey greasewood	5
				Galleta	5
221, 223: Dalzell	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Basin big sagebrush	20
		Normal	1,100	Black greasewood	20
		Unfavorable	1,000	Basin wildrye	15
				Creeping wildrye	10
				Spiny hopsage	5
				Shadscale	5
231*:					
Delp	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	400	Indian ricegrass	20
		Normal	300	Black greasewood	20
		Unfavorable	200	Hairy horsebrush	15
				Needleandthread	10
				Fourwing saltbush	5
Lox	Sodic Terrace, 4-8" p.z. (27-24)	Favorable	300	Shadscale	40
		Normal	150	Black greasewood	20
		Unfavorable	50	Indian ricegrass	10
				Bottlebrush squirreltail	5
				Bailey greasewood	5
				Bud sagebrush	5
				Fourwing saltbush	5
				Seepweed	5
				Inland saltgrass	5
232*:					
Delp	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	400	Indian ricegrass	20
		Normal	300	Black greasewood	20
		Unfavorable	200	Hairy horsebrush	15
				Needleandthread	10
				Fourwing saltbush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
232*:					
Orizaba	Sodic Terrace, 4-8" p.z. (27-24)	Favorable	300	Shadscale	35
		Normal	150	Black greasewood	20
		Unfavorable	50	Indian ricegrass	10
				Bottlebrush squirreltail	5
				Inland saltgrass	5
				Bailey greasewood	5
				Fourwing saltbush	5
				Bud sagebrush	5
				Seepweed	5
233 Delp	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	400	Indian ricegrass	20
		Normal	300	Black greasewood	20
		Unfavorable	200	Hairy horsebrush	15
				Needleandthread	10
				Fourwing saltbush	5
241*:					
Devada	Claypan, 10-12" p.z. (26-23)	Favorable	500	Thurber needlegrass	25
		Normal	400	Low sagebrush	20
		Unfavorable	300	Canby bluegrass	10
				Bottlebrush squirreltail	10
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
				Littleleaf horsebrush	5
Rock outcrop.					
242*:					
Devada	Claypan, 10-12" p.z. (26-23)	Favorable	500	Thurber needlegrass	25
		Normal	400	Low sagebrush	20
		Unfavorable	300	Canby bluegrass	10
				Bottlebrush squirreltail	10
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
				Littleleaf horsebrush	5
Rock outcrop.					
251, 252 Dia	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
253 Dia	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Sedge	30
		Normal	1,500	Rush	20
		Unfavorable	1,000	Tufted hairgrass	20
				Nevada bluegrass	15
				Meadow barley	10
				Alpine timothy	5
254*:					
Dia	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Sedge	30
		Normal	1,500	Rush	20
		Unfavorable	1,000	Tufted hairgrass	20
				Nevada bluegrass	15
				Meadow barley	10
				Alpine timothy	5
Dithod (clay loam, wet)	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Sedge	25
		Normal	1,500	Rush	15
		Unfavorable	1,000	Tufted hairgrass	15
				Nevada bluegrass	15
				Meadow barley	10
				Alpine timothy	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
254*:					
Dithod (loam, saline-alkali)	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	30
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Basin wildrye	10
				Black greasewood	10
				Creeping wildrye	5
				Iodinebush	5
				Seepweed	5
255*:					
Dia	Wetland, 4-8" p.z. (27-1)	Favorable	3,000	Rush	50
		Normal	2,500	Sedge	20
		Unfavorable	2,000	Cattail	10
				Willow	5
Dithod	Wetland, 4-8" p.z. (27-1)	Favorable	3,000	Rush	50
		Normal	2,500	Sedge	20
		Unfavorable	2,000	Cattail	10
				Willow	5
256*:					
Dia	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
Sagouspe (sandy loam)	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Western wheatgrass	15
				Basin big sagebrush	10
				Slender wheatgrass	5
				Inland saltgrass	5
				Rubber rabbitbrush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo-sition
			Lb/acre		Pct
256*:					
Sagouspe (loamy sand)	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Western wheatgrass	15
				Basin big sagebrush	10
				Slender wheatgrass	5
				Inland saltgrass	5
				Rubber rabbitbrush	5
261 Dithod	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
262 Dithod	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
263 Dithod	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Sedge	25
		Normal	1,500	Rush	15
		Unfavorable	1,000	Tufted hairgrass	15
				Nevada bluegrass	15
				Meadow barley	10
				Alpine timothy	5
264 Dithod	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	30
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Basin wildrye	10
				Black greasewood	10
				Creeping wildrye	5
				Iodinebush	5
				Seepweed	5
265 Dithod	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
268 Dithod	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	30
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Basin wildrye	10
				Black greasewood	10
				Creeping wildrye	5
				Iodinebush	5
				Seepweed	5
269*:					
Dithod	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo-sition
			Lb/acre		Pct
269*:					
Sagouspe	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Slender wheatgrass	10
				Inland saltgrass	5
				Rubber rabbitbrush	5
Dia	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrassd	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
271 East Fork	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Slender wheatgrass	10
				Rubber rabbitbrush	5
				Inland saltgrass	5
272 East Fork	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Slender wheatgrass	10
				Rubber rabbitbrush	5
				Inland saltgrass	5
274 East Fork	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Slender wheatgrass	10
				Rubber rabbitbrush	5
				Inland saltgrass	5
275 East Fork	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	25
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Black greasewood	10
				Basin wildrye	10
				Creeping wildrye	5
				Iodinebush	5
				Seepweed	5
276 East Fork	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Slender wheatgrass	10
				Rubber rabbitbrush	5
				Inland saltgrass	5
277 East Fork	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Slender wheatgrass	10
				Rubber rabbitbrush	5
				Inland saltgrass	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
291, 292: Fallon	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Slender wheatgrass	10
				Rubber rabbitbrush	5
				Inland saltgrass	5
293: Fallon	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
294: Fallon	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	30
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Creeping wildrye	10
				Black greasewood	10
				Basin wildrye	10
				Iodinebush	5
				Seepweed	5
295: Fallon	Wetland, 4-8" p.z. (27-1)	Favorable	3,000	Rush	50
		Normal	2,500	Sedge	20
		Unfavorable	2,000	Cattail	10
				Willow	5
301: Fernley	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Sedge	30
		Normal	1,500	Rush	20
		Unfavorable	1,000	Tufted hairgrass	20
				Nevada bluegrass	15
				Meadow barley	10
				Alpine timothy	5
302: Fernley	Moist Floodplain, 4-8" p.z. (27-2)	Favorable	3,000	Creeping wildrye	30
		Normal	2,500	Basin wildrye	15
		Unfavorable	2,000	Basin big sagebrush	15
				Western wheatgrass	10
				Rubber rabbitbrush	5
				Slender wheatgrass	5
				Inland saltgrass	5
311, 312: Pulstone	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5
313*:					
Pulstone (4 to 15 percent slopes)	Claypan, 8-10 p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5
Pulstone (15 to 30 percent slopes)	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
314*:					
Fulstone (4 to 15 percent slopes)	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5
Reno	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5
Fulstone (15 to 30 percent slopes)	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5
315*:					
Fulstone	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5
Stucky	Claypan, 6-8" p.z. (26-47)	Favorable	300	Low sagebrush	35
		Normal	200	Desert needlegrass	20
		Unfavorable	150	Nevada ephedra	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Douglas rabbitbrush	5
				Indian ricegrass	5
321 Haybourne	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	25
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	10
				Bottlebrush squirreltail	5
				Green ephedra	5
				Anderson peachbrush	5
331*:					
Hocar	Shallow Loam, 10-12" p.z. (26-15)	Favorable	700	Thurber needlegrass	20
		Normal	600	Wyoming big sagebrush	15
		Unfavorable	450	Bottlebrush squirreltail	15
				Indian ricegrass	10
				Antelope bitterbrush	10
				Green ephedra	5
				Douglas rabbitbrush	5
Rock outcrop.					
341 Holbrook	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	20
		Unfavorable	500	Basin wildrye	10
				Antelope bitterbrush	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
343*:					
Holbrook	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	20
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	15
				Bottlebrush squirreltail	10
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
Hotsprings	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	25
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	15
				Anderson peachbrush	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Douglas rabbitbrush	5
344*:					
Holbrook	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	20
		Unfavorable	600	Basin wildrye	10
				Antelope bitterbrush	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
Shree	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Basin wildrye	10
				Antelope bitterbrush	10
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
345*:					
Holbrook Variant	Loamy, 10-12" pz. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Basin wildrye	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Antelope bitterbrush	5
Rock outcrop.					
352, 353 Hotsprings	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	25
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	15
				Anderson peachbrush	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Douglas rabbitbrush	5
354*:					
Hotsprings	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	25
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	15
				Anderson peachbrush	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Douglas rabbitbrush	5
Holbrook	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	20
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	15
				Bottlebrush squirreltail	10
				Douglas rabbitbrush	5
				Anderson peachbrush	5
				Green ephedra	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
361: Hough	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	15
		Unfavorable	100	Bailey greasewood	10
				Bottlebrush squirreltail	5
				Bud sagebrush	5
				Galleta	5
371*: Hyloc.					
Ister	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Mountain big sagebrush	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Western needlegrass	20
				Basin wildrye	10
				Antelope bitterbrush	5
				Sandberg bluegrass	5
372*: Hyloc.					
Ister	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Mountain big sagebrush	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Western needlegrass	20
				Basin wildrye	10
				Antelope bitterbrush	5
				Sandberg bluegrass	5
Rock outcrop.					
391: Juva	Silty, 4-8" p.z. (27-14)	Favorable	400	Winterfat	40
		Normal	300	Indian ricegrass	20
		Unfavorable	200	Bud sagebrush	20
				Needleandthread	5
				Bottlebrush squirreltail	5
				Shadscale	5
392: Juva	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bud sagebrush	10
				Bailey greasewood	10
				Galleta	5
401: Lahontan	Sodic Flat, 4-8" p.z. (27-25)	Favorable	200	Black greasewood	50
		Normal	100	Indian ricegrass	10
		Unfavorable	50	Basin wildrye	10
				Inland saltgrass	5
				Bottlebrush squirreltail	5
				Alkali sacaton	5
				Shadscale	5
				Bud sagebrush	5
411: Lapon	Claypan, 8-10" p.z. (27-20)	Favorable	300	Low sagebrush	35
		Normal	200	Pine bluegrass	20
		Unfavorable	100	Thurber needlegrass	15
				Sandberg bluegrass	10
				Bottlebrush squirreltail	5
				Spiny horsebrush	5
				Spiny hopsage	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
412*:					
Lapon	Claypan, 8-10" p.z. (27-20)	Favorable	300	Low sagebrush	35
		Normal	200	Pine bluegrass	20
		Unfavorable	100	Thurber needlegrass	15
				Sandberg bluegrass	10
				Bottlebrush squirreltail	5
				Spiny horsebrush	5
				Spiny hopsage	5
Rubble land.					
Rock outcrop.					
413*:					
Lapon	Claypan, 8-10" p.z. (27-20)	Favorable	300	Low sagebrush	35
		Normal	200	Pine bluegrass	20
		Unfavorable	100	Thurber needlegrass	15
				Sandberg bluegrass	10
				Bottlebrush squirreltail	5
				Spiny horsebrush	5
				Spiny hopsage	5
Pulatone	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5
Old Camp	Shallow Stony Loam, 8-10" p.z. (26-22)	Favorable	600	Desert needlegrass	25
		Normal	450	Wyoming big sagebrush	20
		Unfavorable	300	Bottlebrush squirreltail	10
				Green ephedra	10
				Thurber needlegrass	5
				Douglas rabbitbrush	5
				Spiny hopsage	5
441 Lunder	Claypan, 10-12" p.z. (26-23)	Favorable	500	Thurber needlegrass	20
		Normal	400	Low sagebrush	20
		Unfavorable	300	Canby bluegrass	10
				Bottlebrush squirreltail	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
				Littleleaf horsebrush	5
451 Obanion	Wetland, 4-8" p.z. (27-1)	Favorable	3,000	Rush	45
		Normal	2,500	Sedge	15
		Unfavorable	2,000	Cattail	10
				Willow	10
452 Obanion	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Rush	25
		Normal	1,500	Sedge	15
		Unfavorable	1,000	Tufted hairgrass	15
				Nevada bluegrass	10
				Meadow barley	5
				Alpine timothy	5
453 Obanion	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	25
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Creeping wildrye	10
				Basin wildrye	10
				Black greasewood	10
				Iodinebush	5
				Seepweed	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
462*, 464*:					
Olac	Claypan, 8-10" p.z. (26-25)	Favorable	400	Low sagebrush	30
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Bottlebrush squirreltail	10
				Sandberg bluegrass	10
Rock outcrop.					
466*:					
Olac	Claypan, 8-10" p.z. (26-25)	Favorable	400	Low sagebrush	30
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Bottlebrush squirreltail	10
				Sandberg bluegrass	10
Inter	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Mountain big sagebrush	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Western needlegrass	20
				Basin wildrye	10
				Antelope bitterbrush	5
				Sandberg bluegrass	5
Rock outcrop.					
471*:					
Oppio	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Antelope bitterbrush	10
				Bluebunch wheatgrass	10
				Sandberg bluegrass	5
				Douglas rabbitbrush	5
				Bottlebrush squirreltail	5
Nosrac	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	25
		Normal	950	Mountain brome	20
		Unfavorable	800	Mountain big sagebrush	15
				Antelope bitterbrush	10
				Basin wildrye	10
				Spike-fescue	5
481 Orizaba	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood	25
		Normal	1,100	Basin big sagebrush	20
		Unfavorable	1,000	Basin wildrye	10
				Creeping wildrye	10
				Spiny hopsage	5
				Shadscale	5
482 Orizaba	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	30
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Black greasewood	10
				Creeping wildrye	10
				Basin wildrye	10
				Seepweed	5
				Iodinebush	5
483 Orizaba	Sodic Terrace, 4-8" p.z. (27-24)	Favorable	300	Shadscale	35
		Normal	150	Black greasewood	20
		Unfavorable	50	Indian ricegrass	10
				Bottlebrush squirreltail	5
				Inland saltgrass	5
				Bailey greasewood	5
				Fourwing saltbush	5
				Bud sagebrush	5
				Seepweed	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
484: Orizaba	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood	25
		Normal	1,100	Basin big sagebrush	20
		Unfavorable	1,000	Basin wildrye	10
				Creeping wildrye	10
				Creeping wildrye	10
				Spiny hopsage	5
				Shadscale	5
486*:					
Orizaba	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	30
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Black greasewood	10
				Creeping wildrye	10
				Basin wildrye	10
				Seepweed	5
				Iodinebush	5
Delp	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	400	Indian ricegrass	20
		Normal	300	Black greasewood	20
		Unfavorable	200	Hairy horsebrush	15
				Needleandthread	10
				Fourwing saltbush	5
491: Otomo	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	15
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
501: Parran	Sodic Flat, 4-8" p.z. (27-25)	Favorable	200	Black greasewood	50
		Normal	100	Basin wildrye	10
		Unfavorable	50	Seepweed	10
				Inland saltgrass	5
				Alkali sacaton	5
				Shadscale	5
				Indian ricegrass	5
				Bottlebrush squirreltail	5
511, 512: Patna	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	50
		Normal	500	Fourwing saltbush	10
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Nevada dalea	5
514: Patna	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	50
		Normal	500	Needleandthread	10
		Unfavorable	300	Bailey greasewood	10
				Fourwing saltbush	10
				Nevada dalea	5
516: Patna	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	50
		Normal	500	Fourwing saltbush	10
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Nevada dalea	5
517*:					
Patna	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	50
		Normal	500	Fourwing saltbush	10
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Nevada dalea	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
517*:					
Hough	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	15
		Unfavorable	100	Bailey greasewood	10
				Bottlebrush squirreltail	5
				Bud sagebrush	5
				Galleta	5
Playas.					
518 Patna	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	50
		Normal	500	Needleandthread	10
		Unfavorable	300	Bailey greasewood	10
				Fourwing saltbush	10
				Galleta	5
				Nevada dalea	5
521 Pizene	Sodic Terrace, 8-10" p.z. (16-12)	Favorable	1,200	Black greasewood	20
		Normal	1,100	Basin wildrye	15
		Unfavorable	1,000	Basin big sagebrush	15
				Inland saltgrass	10
				Creeping wildrye	10
				Shadscale	5
522*:					
Pizene	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood	20
		Normal	1,100	Basin wildrye	15
		Unfavorable	1,000	Basin big sagebrush	15
				Inland saltgrass	10
				Creeping wildrye	10
				Shadscale	5
Orizaba	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood	25
		Normal	1,100	Basin big sagebrush	20
		Unfavorable	1,000	Basin wildrye	10
				Creeping wildrye	10
				Spiny hopsage	5
				Shadscale	5
523 Pizene	Sodic Terrace, 8-10" p.z. (26-12)	Favorable	1,200	Black greasewood	20
		Normal	1,100	Basin wildrye	15
		Unfavorable	1,000	Basin big sagebrush	15
				Inland saltgrass	10
				Creeping wildrye	10
				Shadscale	5
524 Pizene	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	500	Black greasewood	20
		Normal	400	Indian ricegrass	20
		Unfavorable	300	Hairy horsebrush	15
				Needleandthread	10
				Fourwing saltbush	5
				Nevada ephedra	5
531, 532, 534, 535 Perazzo	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	15
		Unfavorable	100	Bailey greasewood	10
				Bud sagebrush	10
				Bottlebrush squirreltail	5
541*:					
Uripnes	South Slope, 4-8" p.z. (27-17)	Favorable	400	Desert needlegrass	30
		Normal	200	Littleleaf horsebrush	15
		Unfavorable	100	Indian ricegrass	10
				Shadscale	10
				Nevada ephedra	5
				Bailey greasewood	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
541*:					
Chill	South Slopes, 8-12" p.z. (26-11)	Favorable	800	Desert needlegrass	35
		Normal	700	Thurber needlegrass	10
		Unfavorable	600	Wyoming big sagebrush	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Littleleaf horsebrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
Rock outcrop.					
551 Rawe	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	15
		Unfavorable	100	Bailey greasewood	10
				Galleta	5
				Bud sagebrush	5
				Bottlebrush squirreltail	5
552*:					
Rawe (gravelly sandy loam)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	15
		Unfavorable	100	Bailey greasewood	10
				Galleta	5
				Bud sagebrush	5
				Bottlebrush squirreltail	5
Rawe (loamy sand)	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	35
		Normal	500	Fourwing saltbush	15
		Unfavorable	300	Needleandthread	10
				Galleta	5
				Bailey greasewood	5
				Bud sagebrush	5
				Shadscale	5
				Nevada dalea	5
553*:					
Rawe	Gravelly Loam,, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	15
		Unfavorable	100	Bailey greasewood	10
				Galleta	5
				Bud sagebrush	5
				Bottlebrush squirreltail	5
Malpais	Gravelly Loam,, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Sandberg bluegrass	5
561 Rebel	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	15
		Normal	600	Indian ricegrass	15
		Unfavorable	400	Wyoming big sagebrush	15
				Bottlebrush squirreltail	10
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
571, 572 Reno	Claypan, 8-10" p.z. (26-25)	Favorable	400	Thurber needlegrass	25
		Normal	300	Low sagebrush	20
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
				Littleleaf horsebrush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
581, 582: Risue	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Bottlebrush squirreltail	5
591: Rose Creek	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Sedge	30
		Normal	1,500	Rush	20
		Unfavorable	1,000	Tufted hairgrass	20
				Nevada bluegrass	15
				Alpine timothy	5
601: Rusty	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	35
		Normal	500	Needleandthread	15
		Unfavorable	300	Galleta	5
				Bailey greasewood	5
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5
				Fourwing saltbush	5
603*:					
Rusty	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	35
		Normal	500	Needleandthread	15
		Unfavorable	300	Galleta	5
				Bailey greasewood	5
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5
				Fourwing saltbush	5
Isolde	Dunes, 4-8" p.z. (27-23)	Favorable	300	Hairy horsebrush	30
		Normal	200	Indian ricegrass	20
		Unfavorable	100	Needleandthread	10
				Fourwing saltbush	10
				Nevada dalea	5
				Littleleaf horsebrush	5
604*:					
Rusty	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	35
		Normal	500	Needleandthread	15
		Unfavorable	300	Galleta	5
				Bailey greasewood	5
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5
				Fourwing saltbush	5
Playas.					
613: Sagouspe	Wet Meadow, 4-8" p.z. (27-4)	Favorable	2,500	Sedge	30
		Normal	1,500	Rush	20
		Unfavorable	1,000	Tufted hairgrass	15
				Nevada bluegrass	10
				Meadow barley	5
621, 623, 625: Saralegui	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	20
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	10
				Basin wildrye	5
				Bottlebrush squirreltail	5
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
626 Saralegui	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	20
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	10
				Basin wildrye	5
				Bottlebrush squirreltail	5
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
627 Saralegui Variant	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	15
		Normal	600	Indian ricegrass	15
		Unfavorable	400	Wyoming big sagebrush	15
				Bottlebrush squirreltail	10
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
631 Singatse	Very Shallow Loam, 4-8" p.z. (27-27)	Favorable	100	Indian ricegrass	20
		Normal	50	Shadscale	20
		Unfavorable	25	Desert needlegrass	5
				Galleta	5
				Bottlebrush squirreltail	5
				Bailey greasewood	5
				Nevada ephedra	5
				Bud sagebrush	5
632*:					
Singatse	Very Shallow Loam, 4-8" p.z. (27-27)	Favorable	100	Indian ricegrass	20
		Normal	50	Shadscale	20
		Unfavorable	25	Desert needlegrass	5
				Galleta	5
				Bottlebrush squirreltail	5
				Bailey greasewood	5
				Nevada ephedra	5
				Bud sagebrush	5
Rock outcrop.					
633*:					
Singatse	Very Shallow Loam, 4-8" p.z. (27-27)	Favorable	100	Indian ricegrass	20
		Normal	50	Shadscale	20
		Unfavorable	25	Desert needlegrass	5
				Galleta	5
				Bottlebrush squirreltail	5
				Bailey greasewood	5
				Nevada ephedra	5
				Bud sagebrush	5
Theon	Shallow Stony Loam, 6-8" p.z. (27-19)	Favorable	350	Shadscale	20
		Normal	200	Galleta	15
		Unfavorable	50	Indian ricegrass	10
				Desert needlegrass	10
				Bailey greasewood	10
				Bud sagebrush	10
				Bottlebrush squirreltail	5
				Winterfat	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight (Lb/acre)	Characteristic vegetation	Composition (Pct)
641: Tocan	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	15
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	5
642, 643: Tocan	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	15
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	5
644*:					
Tocan	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	15
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	5
Yerington	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Fourwing saltbush	20
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Winterfat	5
				Dalea	5
				Galleta	5
651: Theon	Shallow Stony Loam, 4-8" p.z. (27-19)	Favorable	350	Shadscale	20
		Normal	200	Galleta	15
		Unfavorable	50	Indian ricegrass	10
				Desert needlegrass	10
				Bailey greasewood	10
				Bud sagebrush	10
				Bottlebrush squirreltail	5
				Winterfat	5
652*:					
Theon (30 to 50 percent slopes)	Shallow Stony Loam, 6-8" p.z. (27-19)	Favorable	350	Shadscale	20
		Normal	200	Galleta	15
		Unfavorable	50	Indian ricegrass	10
				Desert needlegrass	10
				Bailey greasewood	10
				Bud sagebrush	10
				Bottlebrush squirreltail	5
				Winterfat	5
Theon (50 to 75 percent slopes)	South Slope, 4-8" p.z. (27-17)	Favorable	400	Desert needlegrass	30
		Normal	200	Indian ricegrass	10
		Unfavorable	100	Littleleaf horsebrush	10
				Bottlebrush squirreltail	5
				Shadscale	5
				Bailey greasewood	5
				Nevada ephedra	5
Olac	Claypan, 8-10" pz. (26-25)	Favorable	400	Low sagebrush	30
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Bottlebrush squirreltail	10
				Sandberg bluegrass	10
653*:					
Theon	Shallow Stony Loam, 6-8" p.z. (27-19)	Favorable	350	Shadscale	20
		Normal	200	Galleta	15
		Unfavorable	50	Indian ricegrass	10
				Desert needlegrass	10
				Bailey greasewood	10
				Bud sagebrush	10
				Bottlebrush squirreltail	5
				Winterfat	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
653*:					
Lapon	Claypan, 8-10" p.z. (27-20)	Favorable	300	Low sagebrush	35
		Normal	200	Pine bluegrass	20
		Unfavorable	100	Thurber needlegrass	15
				Sandberg bluegrass	10
				Bottlebrush squirreltail	5
				Spiny horsebrush	5
				Spiny hopsage	5
Olac	Claypan, 8-10" p.z. (26-25)	Favorable	400	Low sagebrush	30
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Bottlebrush squirreltail	10
				Sandberg bluegrass	10
654*:					
Theon	South Slope, 4-8" p.z. (27-17)	Favorable	400	Desert needlegrass	30
		Normal	200	Indian ricegrass	10
		Unfavorable	100	Littleleaf horsebrush	10
				Bottlebrush squirreltail	5
				Shadscale	5
				Bailey greasewood	5
				Nevada ephedra	5
Rock outcrop.					
Old Camp	Shallow Stony Loam, 8-10" p.z. (26-22)	Favorable	600	Desert needlegrass	25
		Normal	450	Wyoming big sagebrush	20
		Unfavorable	300	Bottlebrush squirreltail	10
				Green ephedra	10
				Thurber needlegrass	5
				Douglas rabbitbrush	5
				Spiny hopsage	5
655*:					
Theon	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	35
		Normal	500	Fourwing saltbush	15
		Unfavorable	300	Needleandthread	10
				Galleta	5
				Bailey greasewood	5
Yerington	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Fourwing saltbush	20
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Winterfat	5
				Dalea	5
				Galleta	5
661 Isolde	Dunes, 4-8" p.z. (27-23)	Favorable	300	Hairy horsebrush	30
		Normal	200	Indian ricegrass	20
		Unfavorable	100	Needleandthread	10
				Fourwing saltbush	10
				Nevada dalea	5
				Littleleaf horsebrush	5
662*:					
Isolde	Dunes, 4-8" p.z. (27-23)	Favorable	300	Hairy horsebrush	30
		Normal	200	Indian ricegrass	20
		Unfavorable	100	Needleandthread	10
				Fourwing saltbush	10
				Nevada dalea	5
				Littleleaf horsebrush	5
Patna	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	50
		Normal	500	Fourwing saltbush	10
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Nevada dalea	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
663---------------- Isolde	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	400	Indian ricegrass	20
		Normal	300	Black greasewood	20
		Unfavorable	200	Needleandthread	10
				Hairy horsebrush	10
				Fourwing saltbush	5
				Spiny horsebrush	5
				Nevada ephedra	5
671---------------- Toulon	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Galleta	5
				Bud sagebrush	5
681---------------- Yerington Variant	Sodic Terrace, 4-8" p.z. (27-24)	Favorable	300	Shadscale	35
		Normal	150	Black greasewood	25
		Unfavorable	50	Indian ricegrass	10
				Bottlebrush squirreltail	5
				Inland saltgrass	5
				Seepweed	5
				Bailey greasewood	5
				Fourwing saltbush	5
				Bud sagebrush	5
691---------------- Ultra	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	15
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Galleta	5
				Bud sagebrush	5
701---------------- Veta	Droughty Loam, 6-8" p.z. (26-24)	Favorable	400	Wyoming big sagebrush	35
		Normal	300	Spiny hopsage	25
		Unfavorable	200	Indian ricegrass	15
				Desert needlegrass	5
702---------------- Veta	Wash, 8-12" p.z. (26-34)	Favorable	1,000	Basin wildrye	30
		Normal	800	Basin big sagebrush	20
		Unfavorable	600	Antelope bitterbrush	10
				Wheatgrass	10
				Anderson peachbrush	5
704---------------- Veta	Droughty Loam, 6-8" p.z. (26-24)	Favorable	400	Wyoming big sagebrush	35
		Normal	300	Spiny hopsage	25
		Unfavorable	200	Indian ricegrass	15
				Desert needlegrass	5
711*:					
Vylach------------	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bailey greasewood	10
				Galleta	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Bud sagebrush	5
Weena-------------	Eroded Slope, 4-8" p.z. (27-26)	Favorable	200	Indian ricegrass	15
		Normal	100	Shadscale	15
		Unfavorable	50	Bailey greasewood	10
				Winterfat	10
				Desert needlegrass	5
				Fourwing saltbush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
721, 722: Wabuska	Saline Bottom, 4-8" p.z. (27-6)	Favorable	2,000	Basin wildrye	40
		Normal	1,500	Inland saltgrass	10
		Unfavorable	1,000	Alkali sacaton	10
				Black greasewood	10
				Rubber rabbitbrush	5
				Basin big sagebrush	5
723: Wabuska	Saline Bottom, 4-8" p.z. (27-6)	Favorable	2,000	Basin wildrye	40
		Normal	1,800	Inland saltgrass	10
		Unfavorable	1,000	Alkali sacaton	10
				Black greasewood	10
				Rubber rabbitbrush	5
				Basin big sagebrush	5
724: Wabuska	Wet Sodic Bottom, 4-8" p.z. (27-5)	Favorable	2,000	Alkali sacaton	25
		Normal	1,500	Inland saltgrass	20
		Unfavorable	1,000	Basin wildrye	10
				Black greasewood	10
				Creeping wildrye	5
				Iodinebush	5
				Seepweed	5
725*:					
Wabuska	Saline Bottom, 4-8" p.z. (27-6)	Favorable	2,000	Basin wildrye	40
		Normal	1,800	Inland saltgrass	10
		Unfavorable	1,000	Alkali sacaton	10
				Black greasewood	10
				Rubber rabbitbrush	5
				Basin big sagebrush	5
Delp	Sodic Dunes, 4-8" p.z. (27-16)	Favorable	400	Indian ricegrass	20
		Normal	300	Black greasewood	20
		Unfavorable	200	Hairy horsebrush	15
				Needleandthread	10
				Fourwing saltbush	5
Playas.					
731, 732, 733, 734, 735: Hunewill	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	15
		Normal	600	Wyoming big sagebrush	15
		Unfavorable	400	Indian ricegrass	10
				Bottlebrush squirreltail	10
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
741*:					
Wedertz	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	20
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	10
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
				Basin wildrye	5
				Anderson peachbrush	5
				Green ephedra	5
Wellington	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	25
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	15
				Bottlebrush squirreltail	10
				Green ephedra	5
				Anderson peachbrush	5
				Douglas rabbitbrush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo-sition
			Lb/acre		Pct
741*:					
Saralegui----------	Loamy, 8-10" p.z. (26-16)------	Favorable	800	Thurber needlegrass------------	20
		Normal	600	Wyoming big sagebrush----------	20
		Unfavorable	400	Indian ricegrass---------------	10
				Basin wildrye------------------	5
				Bottlebrush squirreltail-------	5
				Anderston peachbrush-----------	5
				Green ephedra------------------	5
				Douglas rabbitbrush------------	5
742*, 743*:					
Wedertz------------	Loamy, 8-10" p.z. (26-16)------	Favorable	800	Thurber needlegrass------------	20
		Normal	600	Wyoming big sagebrush----------	20
		Unfavorable	400	Indian ricegrass---------------	10
				Bottlebrush squirreltail-------	5
				Douglas rabbitbrush------------	5
				Basin wildrye------------------	5
				Anderson peachbrush------------	5
				Green ephedra------------------	5
Wellington---------	Loamy, 8-10" p.z. (26-16)------	Favorable	800	Thurber needlegrass------------	25
		Normal	600	Wyoming big sagebrush----------	20
		Unfavorable	400	Indian ricegrass---------------	15
				Bottlebrush squirreltail-------	10
				Green ephedra------------------	10
				Green ephedra------------------	5
				Anderson peachbrush------------	5
				Douglas rabbitbrush------------	5
744*:					
Wedertz------------	Loamy, 8-10" p.z. (26-16)------	Favorable	800	Thurber needlegrass------------	20
		Normal	600	Wyoming big sagebrush----------	20
		Unfavorable	400	Indian ricegrass---------------	10
				Bottlebrush squirreltail-------	5
				Douglas rabbitbrush------------	5
				Basin wildrye------------------	5
				Anderson peachbrush------------	5
				Green ephedra------------------	5
Saralegui----------	Loamy, 8-10" p.z. (26-16)------	Favorable	800	Thurber needlegrass------------	20
		Normal	600	Wyoming big sagebrush----------	20
		Unfavorable	400	Indian ricegrass---------------	10
				Basin wildrye------------------	5
				Bottlebrush squirreltail-------	5
				Anderson peachbrush------------	5
				Green ephedra------------------	5
				Douglas rabbitbrush------------	5
Wellington---------	Loamy, 8-10" p.z. (26-16)------	Favorable	800	Thurber needlegrass------------	25
		Normal	600	Wyoming big sagebrush----------	20
		Unfavorable	400	Indian ricegrass---------------	15
				Bottlebrush squirreltail-------	10
				Green ephedra------------------	5
				Anderson peachbrush------------	5
				Douglas rabbitbrush------------	5
746*:					
Wellsed------------	Loamy, 8-10" p.z. (27-35)------	Favorable	700	Wyoming big sagebrush----------	25
		Normal	500	Galleta------------------------	20
		Unfavorable	400	Indian ricegrass---------------	15
				Spiny hopsage------------------	10
				Bottlebrush squirreltail-------	5
				Sandberg bluegrass-------------	5
				Nevada ephedra-----------------	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo-sition
			Lb/acre		Pct
746*:					
Wedlar	Loamy, 8-10" p.z. (27-35)	Favorable	700	Wyoming big sagebrush	25
		Normal	500	Galleta	20
		Unfavorable	400	Indian ricegrass	15
				Spiny hopsage	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Nevada ephedra	5
751 Malpais	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Sandberg bluegrass	5
753 Malpais	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Sandberg bluegrass	5
754*:					
Malpais (gravelly sandy loam)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Sandberg bluegrass	5
Malpais (stony sandy loam)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Sandberg bluegrass	5
755*:					
Yerington	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Fourwing saltbush	20
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Winterfat	5
				Dalea	5
				Galleta	5
761, 762, 763, 764, 765, 766, 767 Yerington	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Fourwing saltbush	20
		Unfavorable	300	Bailey greasewood	10
				Needleandthread	10
				Winterfat	5
				Dalea	5
				Galleta	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
771*:					
Biddleman (gravelly sandy loam)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	30
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bud sagebrush	10
				Bailey greasewood	10
				Galleta	5
Biddleman (very stony sandy loam)	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bud sagebrush	10
				Galleta	5
				Bailey greasewood	5
781 Celeton	Eroded Slope, 4-8" p.z. (27-26)	Favorable	200	Shadscale	20
		Normal	100	Indian ricegrass	15
		Unfavorable	50	Desert needlegrass	10
				Bailey greasewood	10
				Winterfat	5
				Nevada ephedra	5
				Douglas rabbitbrush	5
				Bud sagebrush	5
782*:					
Weena	Eroded Slope, 4-8" p.z. (27-16)	Favorable	200	Indian ricegrass	15
		Normal	100	Shadscale	15
		Unfavorable	50	Bailey greasewood	10
				Winterfat	10
				Desert needlegrass	5
				Fourwing saltbush	5
Malpais	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	25
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bailey greasewood	10
				Bud sagebrush	10
				Galleta	5
				Sandberg bluegrass	5
791*:					
Flex	Shallow Loam, 10-12" p.z. (26-15)	Favorable	700	Thurber needlegrass	20
		Normal	600	Bottlebrush squirreltail	15
		Unfavorable	450	Wyoming big sagebrush	15
				Indian ricegrass	10
				Antelope bitterbrush	10
				Douglas rabbitbrush	5
Duco.					
792*:					
Pirouette	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass	20
		Normal	200	Shadscale	20
		Unfavorable	100	Bottlebrush squirreltail	10
				Bud sagebrush	10
				Galleta	5
				Sandberg bluegrass	5
				Bailey greasewood	5
Osobb	Eroded Slope, 4-8" p.z. (27-26)	Favorable	200	Indian ricegrass	20
		Normal	100	Shadscale	20
		Unfavorable	50	Bailey greasewood	10
				Desert needlegrass	10
				Winterfat	5
				Nevada ephedra	5
				Douglas rabbitbrush	5
Rock outcrop.					

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
793----------------- Pirouette	Gravelly Loam, 4-6" p.z. (27-18)	Favorable	400	Indian ricegrass---------------	25
		Normal	200	Bottlebrush squirreltail------	15
		Unfavorable	100	Shadscale----------------------	15
				Bailey greasewood-------------	10
				Bud sagebrush-----------------	10
				Galleta-----------------------	5
				Winterfat---------------------	5
802*:					
Loomer-------------	South Slope, 6-8" p.z. (26-41)	Favorable	650	Desert needlegrass------------	25
		Normal	550	Low sagebrush-----------------	25
		Unfavorable	400	Nevada ephedra----------------	10
				Indian ricegrass--------------	10
				Spiny hopsage-----------------	5
				Bottlebrush squirreltail------	5
Zephan-------------	Claypan, 8-10" p.z. (26-25)---	Favorable	400	Low sagebrush-----------------	30
		Normal	300	Thurber needlegrass-----------	25
		Unfavorable	200	Bottlebrush squirreltail------	10
				Sandberg bluegrass------------	5
				Littleleaf horsebrush---------	5
Olac---------------	Claypan, 8-10" p.z. (26-25)---	Favorable	400	Low sagebrush-----------------	30
		Normal	300	Thurber needlegrass-----------	20
		Unfavorable	200	Bottlebrush squirreltail------	10
				Sandberg bluegrass------------	10
803*:					
Loomer------------- (15 to 30 percent slopes)	South Slope, 6-8" p.z. (26-41)	Favorable	650	Desert needlegrass------------	25
		Normal	550	Low sagebrush-----------------	25
		Unfavorable	400	Nevada ephedra----------------	10
				Indian ricegrass--------------	10
				Spiny hopsage-----------------	5
				Bottlebrush squirreltail------	5
Loomer------------- (30 to 50 percent slopes)	Claypan, 8-10" p.z. (26-25)---	Favorable	400	Low sagebrush-----------------	25
		Normal	300	Thurber needlegrass-----------	20
		Unfavorable	200	Bottlebrush squirreltail------	10
				Sandberg bluegrass------------	5
811*:					
Trid--------------- (30 to 50 percent slopes)	Granitic Upland, 12-14" p.z. (26-46)	Favorable	800	Thurber needlegrass-----------	20
		Normal	600	Mountain big sagebrush--------	15
		Unfavorable	400	Indian ricegrass--------------	10
				Antelope bitterbrush----------	10
				Pine bluegrass----------------	5
				Sandberg bluegrass------------	5
				Bottlebrush squirreltail------	5
				Currant-----------------------	5
				Green ephedra-----------------	5
Trid--------------- (4 to 15 percent slopes)	Granitic Upland, 12-14" p.z. (26-46)	Favorable	800	Thurber needlegrass-----------	20
		Normal	600	Mountain big sagebrush--------	15
		Unfavorable	400	Indian ricegrass--------------	10
				Antelope bitterbrush----------	10
				Pine bluegrass----------------	5
				Sandberg bluegrass------------	5
				Bottlebrush squirreltail------	5
				Currant-----------------------	5
				Green ephedra-----------------	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
811*:					
Drit	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Mountain big sagebrush	15
				Basin wildrye	10
				Sandberg bluegrass	5
				Arrowleaf balsamroot	5
				Antelope bitterbrush	5
812*:					
Trid	Granitic Upland, 12-14" p.z. (26-46)	Favorable	800	Thurber needlegrass	20
		Normal	600	Mountain big sagebrush	15
		Unfavorable	400	Indian ricegrass	10
				Antelope bitterbrush	10
				Pine bluegrass	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Currant	5
				Green ephedra	5
Roloc	Granitic Upland, 12-14" p.z. (26-46)	Favorable	800	Thurber needlegrass	20
		Normal	600	Mountain big sagebrush	15
		Unfavorable	400	Indian ricegrass	10
				Antelope bitterbrush	10
				Pine bluegrass	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Currant	5
				Green ephedra	5
Drit	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Mountain big sagebrush	15
				Basin wildrye	10
				Sandberg bluegrass	5
				Arrowleaf balsamroot	5
				Antelope bitterbrush	5
831*:					
Ister	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Mountain big sagebrush	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Western needlegrass	20
				Basin wildrye	10
				Antelope bitterbrush	5
				Sandberg bluegrass	5
Hyloc.					
Lunder	Claypan, 10-12" p.z. (26-23)	Favorable	500	Thurber needlegrass	20
		Normal	400	Low sagebrush	20
		Unfavorable	300	Canby bluegrass	10
				Bottlebrush squirreltail	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
				Littleleaf horsebrush	5
841*:					
Bradshaw	Mahogany Slopes, 14-18" p.z. (26-9)	Favorable	1,000	Curlleaf mountainmahogany	50
		Normal	800	Pine bluegrass	5
		Unfavorable	600	Basin wildrye	5
				Mountain big sagebrush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
841*:					
Hartig	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	950	Mountain big sagebrush	15
		Unfavorable	800	Mountain brome	10
				Basin wildrye	5
				Sandberg bluegrass	5
				Antelope bitterbrush	5
				Snowberry	5
				Serviceberry	5
851*:					
Tenpin	Claypan, 8-10" p.z. (26-25)	Favorable	400	Low sagebrush	30
		Normal	300	Thurber needlegrass	25
		Unfavorable	200	Bottlebrush squirreltail	15
				Sandberg bluegrass	10
Shree	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Basin wildrye	10
				Antelope bitterbrush	10
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
861 Shree	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Basin wildrye	10
				Antelope bitterbrush	10
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
871*:					
Nall.					
Luppino	Sandy, 8-10" p.z. (26-20)	Favorable	800	Needleandthread	20
		Normal	600	Wyoming big sagebrush	15
		Unfavorable	400	Thurber needlegrass	10
				Bottlebrush squirreltail	10
				Pricklygilia	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
				Big saltbush	5
Hotsprings	Loamy , 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	25
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	15
				Anderson peachbrush	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Douglas rabbitbrush	5
881*:					
Ravenell Variant	Claypan, 12-18" p.z. (26-39)	Favorable	500	Thurber needlegrass	20
		Normal	300	Low sagebrush	20
		Unfavorable	200	Pine bluegrass	10
				Prairie junegrass	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
881*:					
Devils Variant	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	950	Mountain big sagebrush	15
		Unfavorable	800	Mountain brome	10
				Basin wildrye	5
				Sandberg bluegrass	5
				Antelope bitterbrush	5
				Common snowberry	5
				Serviceberry	5
891*, 892*:					
Berit	Shallow Granitic Upland, 10-12" p.z. (26-18)	Favorable	650	Desert needlegrass	25
		Normal	400	Antelope bitterbrush	15
		Unfavorable	250	Wyoming big sagebrush	10
				Green ephedra	10
				Thurber needlegrass	5
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
Shoken	Shallow Granitic Upland, 10-12" p.z. (26-18)	Favorable	650	Desert needlegrass	25
		Normal	400	Antelope bitterbrush	15
		Unfavorable	250	Wyoming big sagebrush	10
				Green ephedra	10
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
				Thurber needlegrass	5
893*:					
Berit.					
Saralegui	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	20
		Normal	600	Wyoming big sagebrush	20
		Unfavorable	400	Indian ricegrass	10
				Basin wildrye	5
				Bottlebrush squirreltail	5
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
911*:					
Fulstone Variant	Claypan, 12-18" p.z. (26-39)	Favorable	500	Thurber needlegrass	20
		Normal	300	Low sagebrush	20
		Unfavorable	200	Pine bluegrass	10
				Prairie junegrass	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Eriogonum	5
				Green ephedra	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
Devils	Claypan, 12-18" p.z. (26-39)	Favorable	500	Low sagebrush	25
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Pine bluegrass	5
				Prairie junegrass	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
Glean	Loamy, 14-18" p.z. (26-38)	Favorable	1,500	Western needlegrass	30
		Normal	1,200	Mountain big sagebrush	20
		Unfavorable	800	Basin wildrye	10
				Columbia needlegrass	10
				Spike-fescue	10

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
921*:					
Glean	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	900	Mountain big sagebrush	15
		Unfavorable	800	Mountain brome	10
				Basin wildrye	5
				Antelope bitterbrush	5
				Sandberg bluegrass	5
				Snowberry	5
				Serviceberry	5
Devils	Claypan, 12-18" p.z. (26-39)	Favorable	500	Low sagebrush	25
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Pine bluegrass	5
				Prairie junegrass	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
922*:					
Glean	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	900	Mountain big sagebrush	15
		Unfavorable	800	Mountain brome	10
				Basin wildrye	5
				Antelope bitterbrush	5
				Sandberg bluegrass	5
				Snowberry	5
				Serviceberry	5
Devils	Claypan, 12-18" p.z. (26-39)	Favorable	500	Low sagebrush	25
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Pine bluegrass	5
				Prairie junegrass	5
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Green ephedra	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
Rock outcrop.					
923*:					
Glean	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	900	Mountain big sagebrush	15
		Unfavorable	800	Mountain brome	10
				Basin wildrye	5
				Antelope bitterbrush	5
				Sandberg bluegrass	5
				Snowberry	5
				Serviceberry	5
Ticino	Mahogany Slopes, 14-18" p.z. (26-9)	Favorable	1,000	Curlleaf mountainmahogany	45
		Normal	800	Mountain big sagebrush	5
		Unfavorable	600	Common snowberry	5
				Arrowleaf balsamroot	5
				Pine bluegrass	5
				Bottlebrush squirreltail	5
				Basin wildrye	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
923*:					
Hartig	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	950	Mountain big sagebrush	15
		Unfavorable	800	Mountain brome	10
				Basin wildrye	5
				Sandberg bluegrass	5
				Antelope bitterbrush	5
				Snowberry	5
				Serviceberry	5
932*:					
Shoken	Shallow Granitic Upland, 10-12" p.z. (26-18)	Favorable	650	Desert needlegrassush	25
		Normal	400	Antelope bitterbrush	15
		Unfavorable	250	Green ephedra	10
				Wyoming big sagebrush	10
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
				Thurber needlegrass	5
Rock outcrop.					
951*:					
Koontz	Shallow Loam, 10-12" p.z. (26-15)	Favorable	700	Thurber needlegrass	20
		Normal	600	Bottlebrush squirreltail	15
		Unfavorable	450	Wyoming big sagebrush	15
				Indian ricegrass	10
				Antelope bitterbrush	10
				Douglas rabbitbrush	5
Ravenell	Claypan, 8-10" p.z. (27-49)	Favorable	500	Galleta	30
		Normal	350	Low sagebrush	20
		Unfavorable	200	Indian ricegrass	10
				Desert needlegrass	5
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
				Bud sagebrush	5
Haar	Eroded Slope, 8-12" p.z. (26-29)	Favorable	200	Desert needlegrass	15
		Normal	150	Wyoming big sagebrush	15
		Unfavorable	100	Indian ricegrass	10
				Bottlebrush squirreltail	10
				Douglas rabbitbrush	10
				Antelope bitterbrush	10
				Purple sage	5
961 Luppino	Sandy, 8-10" p.z. (26-20)	Favorable	800	Needleandthread	20
		Normal	600	Wyoming big sagebrush	15
		Unfavorable	400	Thurber needlegrass	10
				Bottlebrush squirreltail	10
				Pricklygilia	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
				Big saltbush	5
971*:					
Minneha.					
Drit	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Mountain big sagebrush	15
				Basin wildrye	10
				Sandberg bluegrass	5
				Arrowleaf balsamroot	5
				Antelope bitterbrush	5
Rock outcrop.					

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
981------------------ Ravenell	Claypan, 8-10" p.z. (27-49)---	Favorable	500	Galleta----------------------	30
		Normal	350	Low sagebrush----------------	20
		Unfavorable	200	Indian ricegrass-------------	10
				Desert needlegrass-----------	5
				Bottlebrush squirreltail------	5
				Douglas rabbitbrush----------	5
				Bud sagebrush----------------	5
982*:					
Ravenell----------	Claypan, 8-10" p.z. (27-49)---	Favorable	500	Galleta----------------------	30
		Normal	350	Low sagebrush----------------	20
		Unfavorable	200	Indian ricegrass-------------	10
				Desert needlegrass-----------	5
				Bottlebrush squirreltail------	5
				Douglas rabbitbrush----------	5
				Bud sagebrush----------------	5
Haar--------------	Eroded Slope, 8-12" p.z. (26-29)	Favorable	200	Desert needlegrass-----------	15
		Normal	150	Wyoming big sagebrush---------	15
		Unfavorable	100	Indian ricegrass-------------	10
				Bottlebrush squirreltail------	10
				Douglas rabbitbrush----------	10
				Antelope bitterbrush----------	10
				Purple sage------------------	5
Rock outcrop.					
991*:					
Roloc-------------	South Slope, 8-12" p.z. (26-11)	Favorable	800	Desert needlegrass-----------	40
		Normal	700	Thurber needlegrass----------	10
		Unfavorable	600	Green ephedra----------------	10
				Wyoming big sagebrush---------	10
				Douglas rabbitbrush----------	5
Orit--------------	Loamy, 12-14" p.z. (26-5)-----	Favorable	1,100	Western needlegrass----------	20
		Normal	950	Mountain brome---------------	20
		Unfavorable	800	Mountain big sagebrush--------	15
				Basin wildrye----------------	10
				Sandberg bluegrass-----------	5
				Arrowleaf balsamroot----------	5
				Antelope bitterbrush----------	5
1001--------------- Rowel	Claypan, 8-10" p.z. (27-49)---	Favorable	500	Galleta----------------------	25
		Normal	350	Low sagebrush----------------	25
		Unfavorable	200	Indian ricegrass-------------	10
				Desert needlegrass-----------	5
				Bottlebrush squirreltail------	5
				Douglas rabbitbrush----------	5
				Bud sagebrush----------------	5
1002*:					
Rowel-------------	Claypan, 8-10" p.z. (27-49)---	Favorable	500	Galleta----------------------	25
		Normal	350	Low sagebrush----------------	25
		Unfavorable	200	Indian ricegrass-------------	10
				Desert needlegrass-----------	5
				Bottlebrush squirreltail------	5
				Douglas rabbitbrush----------	5
				Bud sagebrush----------------	5
Rock outcrop.					
1011--------------- Smedley	Very Stony Loam, 3-6" p.z. (27-15)	Favorable	700	Galleta----------------------	30
		Normal	500	Indian ricegrass-------------	15
		Unfavorable	300	Shadscale--------------------	15
				Bailey greasewood------------	10
				Bottlebrush squirreltail------	5
				Sand dropseed----------------	5
				Bud sagebrush----------------	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight (Lb/acre)	Characteristic vegetation	Composition (Pct)
1012: Smedley	Very Stony Loam, 3-6" p.z. (27-15)	Favorable	700	Galleta	30
		Normal	500	Indian ricegrass	15
		Unfavorable	300	Shadscale	15
				Bailey greasewood	10
				Bottlebrush squirreltail	5
				Sand dropseed	5
				Bud sagebrush	5
1013*, 1014*: Smedley	Very Stony Loam, 3-6" p.z. (27-15)	Favorable	700	Galleta	30
		Normal	500	Indian ricegrass	15
		Unfavorable	300	Shadscale	15
				Bailey greasewood	10
				Bottlebrush squirreltail	5
				Sand dropseed	5
				Bud sagebrush	5
1021: Springmeyer	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Basin wildrye	10
				Antelope bitterbrush	10
				Indian ricegrass	5
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
1031*: Burnborough	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	20
		Normal	950	Mountain brome	15
		Unfavorable	800	Mountain big sagebrush	15
				Basin wildrye	10
				Antelope bitterbrush	10
				Sandberg bluegrass	5
				Snowberry	5
Olean	Loamy, 14-18" p.z. (26-38)	Favorable	1,500	Western needlegrass	30
		Normal	1,200	Mountain big sagebrush	20
		Unfavorable	800	Basin wildrye	10
				Columbia needlegrass	10
				Spike-fescue	10
1041*: Whichman	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Basin wildrye	10
				Sandberg bluegrass	5
				Bottlebrush squirreltail	5
				Antelope bitterbrush	5
Ister	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Mountain big sagebrush	20
		Normal	950	Mountain brome	20
		Unfavorable	800	Western needlegrass	20
				Basin wildrye	10
				Antelope bitterbrush	5
				Sandberg bluegrass	5
Rock outcrop.					

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
1051 Zyzzi	Claypan, 8-10" p.z. (27-49)	Favorable	500	Galleta	30
		Normal	350	Low sagebrush	25
		Unfavorable	200	Indian ricegrass	10
				Desert needlegrass	5
				Bottlebrush squirreltail	5
				Douglas rabbitbrush	5
				Bud sagebrush	5
				Nevada ephedra	5
1072 Hawsley	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Needleandthread	10
		Unfavorable	300	Fourwing saltbush	10
				Bailey greasewood	10
				Galleta	5
				Nevada dalea	5
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5
1073*:					
Hawsley	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Needleandthread	10
		Unfavorable	300	Fourwing saltbush	10
				Bailey greasewood	10
				Galleta	5
				Nevada dalea	5
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5
Gamgee	Very Stony Loam, 3-6" p.z. (27-15)	Favorable	700	Galleta	30
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Bailey greasewood	10
				Shadscale	10
				Bottlebrush squirreltail	5
				Bud sagebrush	5
1074 Hawsley	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Fourwing saltbush	20
		Unfavorable	300	Needleandthread	10
				Bailey greasewood	10
				Galleta	5
				Nevada dalea	5
1075*:					
Hawsley	Sandy, 4-8" p.z. (27-9)	Favorable	800	Indian ricegrass	40
		Normal	500	Fourwing saltbush	20
		Unfavorable	300	Needleandthread	10
				Bailey greasewood	10
				Galleta	5
				Nevada dalea	5
Playas.					
1081 Stucky	Claypan, 6-8" p.z. (26-47)	Favorable	300	Low sagebrush	35
		Normal	200	Desert needlegrass	20
		Unfavorable	150	Nevada ephedra	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Douglas rabbitbrush	5
				Indian ricegrass	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
1082*:					
Stucky (8 to 15 percent slopes)	Claypan, 6-8" p.z. (26-47)	Favorable	300	Low sagebrush	35
		Normal	200	Desert needlegrass	20
		Unfavorable	150	Nevada ephedra	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Douglas rabbitbrush	5
				Indian ricegrass	5
Stucky (15 to 30 percent slopes)	Claypan, 6-8" p.z. (26-47)	Favorable	300	Low sagebrush	35
		Normal	200	Desert needlegrass	20
		Unfavorable	150	Nevada ephedra	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Douglas rabbitbrush	5
				Indian ricegrass	5
1083*:					
Stucky	Claypan, 6-8" p.z. (26-47)	Favorable	300	Low sagebrush	35
		Normal	200	Desert needlegrass	20
		Unfavorable	150	Nevada ephedra	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Douglas rabbitbrush	5
				Indian ricegrass	5
Hunewill	Loamy, 8-10" p.z. (26-16)	Favorable	800	Thurber needlegrass	15
		Normal	600	Wyoming big sagebrush	15
		Unfavorable	400	Indian ricegrass	10
				Bottlebrush squirreltail	10
				Anderson peachbrush	5
				Green ephedra	5
				Douglas rabbitbrush	5
Veta	Droughty Loam, 6-8" p.z. (26-24)	Favorable	400	Wyoming big sagebrush	35
		Normal	300	Spiny hopsage	25
		Unfavorable	200	Indian ricegrass	15
				Desert needlegrass	5
1091*:					
Glean Variant	Mahogany Slopes, 14-18" p.z. (26-9)	Favorable	1,000	Curlleaf mountainmahogany	50
		Normal	800	Pine bluegrass	5
		Unfavorable	600	Basin wildrye	5
				Arrowleaf balsamroot	5
Hartig Variant	Loamy, 14-18" p.z. (26-38)	Favorable	1,500	Western needlegrass	30
		Normal	1,200	Mountain big sagebrush	15
		Unfavorable	800	Columbia needlegrass	10
				Spike-fescue	10
				Basin wildrye	10
				Mountain brome	5
				Nevada bluegrass	5
				Subalpine big sagebrush	5
				Snowberry	5
				Currant	5
Rubble land.					
1103*:					
Mirkwood	South Slope, 4-8" p.z. (27-17)	Favorable	400	Desert needlegrass	30
		Normal	200	Indian ricegrass	10
		Unfavorable	100	Littleleaf horsebrush	10
				Shadscale	10
				Bottlebrush squirreltail	5
				Bailey greasewood	5
				Nevada ephedra	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo-sition
			Lb/acre		Pct
1103*:					
Nemico	Very Stony Loam, 3-5" p.z. (27-15)	Favorable	700	Galleta	30
		Normal	500	Indian ricegrass	15
		Unfavorable	300	Bailey greasewood	10
				Bottlebrush squirreltail	5
				Shadscale	5
				Bud sagebrush	5
				Sand dropseed	5
1110*:					
Surgem	Claypan, 10-12" p.z. (26-23)	Favorable	500	Thurber needlegrass	20
		Normal	400	Low sagebrush	20
		Unfavorable	300	Pine bluegrass	10
				Bottlebrush squirreltail	10
				Sandberg bluegrass	5
				Antelope bitterbrush	5
				Douglas rabbitbrush	5
				Littleleaf horsebrush	5
Olac	Claypan, 8-10" p.z. (26-25)	Favorable	400	Low sagebrush	30
		Normal	300	Thurber needlegrass	20
		Unfavorable	200	Bottlebrush squirreltail	10
				Sandberg bluegrass	10
Cagle.					
1121*:					
Duco.					
Nosrac	Loamy, 12-14" p.z. (26-5)	Favorable	1,100	Western needlegrass	25
		Normal	950	Mountain brome	20
		Unfavorable	800	Mountain big sagebrush	15
				Antelope bitterbrush	10
				Basin wildrye	10
				Sandberg bluegrass	5
1131 Gamgee	Very Stony Loam, 3-5" p.z. (27-15)	Favorable	700	Galleta	30
		Normal	500	Shadscale	15
		Unfavorable	300	Indian ricegrass	15
				Bailey greasewood	10
				Bottlebrush squirreltail	5
				Sand dropseed	5
				Bud sagebrush	5
1141*:					
Old Camp	Loamy Slope, 8-10" p.z. (27-7)	Favorable	800	Pine bluegrass	30
		Normal	600	Wyoming big sagebrush	15
		Unfavorable	400	Thurber needlegrass	10
				Nevada ephedra	10
				Spiny hopsage	10
Mirkwood	South Slope, 4-8" p.z. (27-17)	Favorable	400	Desert needlegrass	20
		Normal	200	Shadscale	10
		Unfavorable	100	Indian ricegrass	10
				Littleleaf horsebrush	10
				Bottlebrush squirreltail	5
				Anderson wolfberry	5
				Bailey greasewood	5
				Nevada ephedra	5
				Spiny hopsage	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
1141*:					
Nemico	Very Stony Loam, 3-6" p.z. (27-15)	Favorable	700	Galleta	30
		Normal	500	Indian ricegrass	15
		Unfavorable	300	Bailey greasewood	10
				Bottlebrush squirreltail	5
				Shadscale	5
				Bud sagebrush	5
1142*:					
Old Camp	Shallow Stony Loam, 8-10" p.z. (26-22)	Favorable	600	Desert needlegrass	25
		Normal	450	Wyoming big sagebrush	20
		Unfavorable	300	Bottlebrush squirreltail	10
				Green ephedra	10
				Thurber needlegrass	5
				Douglas rabbitbrush	5
				Spiny hopsage	5
Holbrook Variant	Loamy, 10-12" p.z. (26-10)	Favorable	900	Thurber needlegrass	20
		Normal	700	Wyoming big sagebrush	15
		Unfavorable	600	Basin wildrye	10
				Bottlebrush squirreltail	5
				Sandberg bluegrass	5
				Antelope bitterbrush	5
1143*:					
Old Camp	Shallow Stony Loam, 8-10" p.z. (26-22)	Favorable	600	Desert needlegrass	25
		Normal	450	Wyoming big sagebrush	20
		Unfavorable	300	Bottlebrush squirreltail	10
				Green ephedra	10
				Thurber needlegrass	5
				Douglas rabbitbrush	5
				Spiny hopsage	5
Reno Variant	Shallow Stony Loam, 8-10" p.z. (26-23)	Favorable	600	Desert needlegrass	20
		Normal	450	Wyoming big sagebrush	20
		Unfavorable	300	Green ephedra	15
				Bottlebrush squirreltail	5
				Thurber needlegrass	5
				Douglas rabbitbrush	5
				Spiny hopsage	5
Hyloc.					

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Soil name and map symbol	Ordi-nation symbol	Management concerns: Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Potential productivity: Common trees	Site index
171*: Cagle	3x	Severe	Severe	Moderate	Moderate	Singleleaf pinyon Utah juniper	35 35
Nosrac.							
371*: Hyloc	3d	Slight	Slight	Severe	Slight	Singleleaf pinyon Utah juniper	25 25
Ister.							
372*: Hyloc	3d	Moderate	Moderate	Severe	Slight	Singleleaf pinyon Utah juniper	25 25
Ister.							
Rock outcrop.							
791*: Plex.							
Ducco	3x	Severe	Moderate	Moderate	Slight	Singleleaf pinyon Utah juniper	35 35
831*: Ister.							
Hyloc	3d	Slight	Slight	Severe	Slight	Singleleaf pinyon Utah juniper	25 25
Lunder.							
871*: Nall	2d	Moderate	Moderate	Severe	Moderate	Singleleaf pinyon	55
Luppino.							
Hotsprings.							
893*: Berit	3x	Moderate	Severe	Severe	Moderate	Singleleaf pinyon	48
Saralegui.							
971*: Minneha	3r	Severe	Severe	Severe	Severe	Singleleaf pinyon Utah juniper	46 46
Drit.							
Rock outcrop.							
972*: Minneha	3r	Severe	Severe	Severe	Severe	Singleleaf pinyon Utah juniper	46 46
Berit	3x	Moderate	Severe	Severe	Moderate	Singleleaf pinyon	48
Wile	3d	Moderate	Slight	Severe	Moderate	Singleleaf pinyon Utah juniper	35 35

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns				Potential productivity	
		Erosion hazard	Equip- ment limita- tion	Seedling mortal- ity	Wind- throw hazard	Common trees	Site index
1110*:							
Surgem.							
Olac.							
Cagle-------------	3x	Severe	Severe	Moderate	Moderate	Singleleaf pinyon--- Utah juniper--------	35 35
1121*:							
Duco--------------	3x	Severe	Moderate	Moderate	Slight	Singleleaf pinyon--- Utah juniper--------	35 35
Nosrac.							
1143*:							
Old Camp.							
Reno Variant.							
Hyloc-------------	3d	Slight	Slight	Severe	Slight	Singleleaf pinyon--- Utah juniper--------	25 25

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS

[The symbol < means less than; > means more than. Absence of an entry indicates that trees generally do not grow to the given height on that soil. Only the soils suited to windbreaks and environmental plantings are listed]

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
121, 122----------Appian	Big saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
123*:					
Appian-----------	Big saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
Wabuska----------	Fourwing saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
124*:					
Appian-----------	Big saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
Delp-------------	Cotoneaster, big saltbush.	California buckthorn, Tatarian honeysuckle.	Rocky Mountain juniper, singleleaf pinyon.	Siberian elm, green ash.	American elm, Fremont cottonwood.
151---------------Bluewing Variant	Fourwing saltbush, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Russian-olive.	Green ash, Siberian elm.	Fremont cottonwood, Lombardy poplar.
181, 182, 184, 185--------------Charlebois	Common juniper, sierra currant.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Green ash, narrowleaf cottonwood.	Robusta cottonwood, Lombardy poplar.
221, 223----------Dalzell	Big saltbush, common juniper.	Lilac, silver buffaloberry.	Rocky Mountain juniper, Russian-olive.	Golden willow, Siberian elm.	Fremont cottonwood, white poplar.
231*:					
Delp-------------	Cotoneaster, big saltbush.	California buckthorn, Tatarian honeysuckle.	Rocky Mountain juniper, singleleaf pinyon.	Siberian elm, green ash.	American elm, Fremont cottonwood.
Lox--------------	Common juniper, fourwing saltbush.	Arroyo willow, oneseed juniper.	Russian-olive, silver buffaloberry.	Siberian elm, narrowleaf cottonwood.	Fremont cottonwood, robusta cottonwood.
232*:					
Delp-------------	Cotoneaster, big saltbush.	California buckthorn, Tatarian honeysuckle.	Rocky Mountain juniper, singleleaf pinyon.	Siberian elm, green ash.	American elm, Fremont cottonwood.
Orizaba----------	Big saltbush, fourwing saltbush.	Arroyo willow, coyote willow.	Russian-olive, silver buffaloberry.	Golden willow, Siberian elm.	Lombardy poplar, robusta cottonwood.

See footnote at end of table.

TABLE 8.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
233: Delp	Cotoneaster, big saltbush.	California buckthorn, Tatarian honeysuckle.	Rocky Mountain juniper, singleleaf pinyon.	Siberian elm, green ash.	American elm, Fremont cottonwood.
251, 252: Dia	Golden currant, common juniper.	American plum, arroyo willow.	Rocky Mountain juniper, Utah juniper.	Golden willow, green ash.	Lombardy poplar, robusta cottonwood.
253: Dia	Big saltbush, fourwing saltbush.	Arroyo willow, coyote willow.	Russian-olive, silver buffaloberry.	Honeylocust, golden willow.	Lombardy poplar, Fremont cottonwood.
254*:					
Dia	Big saltbush, fourwing saltbush.	Arroyo willow, coyote willow.	Russian-olive, silver buffaloberry.	Honeylocust, golden willow.	Lombardy poplar, Fremont cottonwood.
Dithod.					
256*:					
Dia	Golden currant, common juniper.	American plum, arroyo willow.	Rocky Mountain juniper, Utah juniper.	Golden willow, green ash.	Lombardy poplar, robusta cottonwood.
Sagouspe (sandy loam)	Golden currant, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Golden willow, green ash.	Fremont cottonwood, robusta cottonwood.
Sagouspe (loamy sand)	Golden currant, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Golden willow, green ash.	Fremont cottonwood, robusta cottonwood.
261: Dithod	Golden currant, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Fremont cottonwood, robusta cottonwood.
265: Dithod	Golden currant, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Fremont cottonwood, robusta cottonwood.
269*:					
Dithod	Golden currant, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Fremont cottonwood, robusta cottonwood.
Sagouspe	Golden currant, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Golden willow, green ash.	Fremont cottonwood, robusta cottonwood.
Dia	Golden currant, common juniper.	American plum, arroyo willow.	Rocky Mountain juniper, Utah juniper.	Golden willow, green ash.	Lombardy poplar, robusta cottonwood.
271: East Fork	Golden currant, skunkbush sumac.	Amur maple, blueberry elder.	Utah juniper, common chokecherry.	Blue spruce, Siberian elm.	American elm, Fremont cottonwood.

See footnote at end of table.

TABLE 8.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
272: East Fork	Fourwing saltbush, redosier dogwood.	Arroyo willow, coyote willow.	Russian-olive, silver buffaloberry.	Honeylocust, golden willow.	Lombardy poplar, Fremont cottonwood.
274: East Fork	Golden currant, skunkbush sumac.	Amur maple, blueberry elder.	Utah juniper, common chokecherry.	Blue spruce, Siberian elm.	American elm, Fremont cottonwood.
276: East Fork	Cotoneaster, skunkbush sumac.	Siberian peashrub, coyote willow.	Russian-olive, silver buffaloberry.	Golden willow, Siberian elm.	White poplar, Lombardy poplar.
277: East Fork	Golden currant, skunkbush sumac.	Amur maple, blueberry elder.	Utah juniper, common chokecherry.	Blue spruce, Siberian elm.	American elm, Fremont cottonwood.
291, 292: Fallon	Golden currant, sierra currant.	Siberian peashrub, arroyo willow.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Lombardy poplar, robusta cottonwood.
294: Fallon	Golden currant, sierra currant.	Siberian peashrub, arroyo willow.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Lombardy poplar, robusta cottonwood.
301: Fernley	Golden currant, skunkbush sumac.	Arroyo willow, coyote willow.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Lombardy poplar, Fremont cottonwood.
302: Fernley	Golden currant, skunkbush sumac.	Arroyo willow, coyote willow.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Lombardy poplar, Fremont cottonwood.
321: Haybourne	Skunkbush sumac, common juniper.	Lilac, American plum.	Rocky Mountain juniper, Utah juniper.	Jeffrey pine, ponderosa pine.	Lombardy poplar, Fremont cottonwood, robusta cottonwood.
341: Holbrook	Skunkbush sumac, snowbrush ceanothus.	Mexican cliffrose, Siberian crabapple.	Utah juniper, common chokecherry.	Narrowleaf cottonwood, Jeffrey pine.	Lombardy poplar, Fremont cottonwood.
343*:					
Holbrook	Skunkbush sumac, snowbrush ceanothus.	Mexican cliffrose, Siberian crabapple.	Utah juniper, common chokecherry.	Narrowleaf cottonwood, Jeffrey pine.	Lombardy poplar, Fremont cottonwood.
Hotsprings	Common juniper, cotoneaster.	Lilac, American plum.	Rocky Mountain juniper, hawthorn.	Scotch pine, Siberian elm.	Giant sequoia, American elm.
344*:					
Holbrook	Skunkbush sumac, snowbrush ceanothus.	Mexican cliffrose, Siberian crabapple.	Utah juniper, common chokecherry.	Narrowleaf cottonwood, Jeffrey pine.	Lombardy poplar, Fremont cottonwood.
Shree.					
352, 353: Hotsprings	Common juniper, cotoneaster.	Lilac, American plum.	Rocky Mountain juniper, hawthorn.	Scotch pine, Siberian elm.	Giant sequoia, American elm.
354*:					
Hotsprings	Common juniper, cotoneaster.	Lilac, American plum.	Rocky Mountain juniper, hawthorn.	Scotch pine, Siberian elm.	Giant sequoia, American elm.

See footnote at end of table.

TABLE 8.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
354*:					
Holbrook	Skunkbush sumac, snowbrush ceanothus.	American plum, Siberian crabapple.	Utah juniper, common chokecherry.	Narrowleaf cottonwood, Jeffrey pine.	Lombardy poplar, Fremont cottonwood.
391, 392 Juva	Common juniper, cotoneaster.	Lilac, American plum.	Rocky Mountain juniper, silver buffaloberry.	Scotch pine, Siberian elm.	Lombardy poplar, Fremont cottonwood.
401 Lahontan	Fourwing saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, Utah juniper.	Siberian elm, green ash.	Lombardy poplar, Fremont cottonwood.
451, 452, 453 Obanion	Big saltbush, fourwing saltbush.	Arroyo willow, coyote willow.	Russian-olive, silver buffaloberry.	Narrowleaf cottonwood, golden willow.	Lombardy poplar, Fremont cottonwood.
481, 482 Orizaba	Big saltbush, fourwing saltbush.	Redosier dogwood, autumn-olive.	Russian-olive, white mulberry.	Black locust, golden willow.	Lombardy poplar, Fremont cottonwood.
483 Orizaba	Big saltbush, fourwing saltbush.	Arroyo willow, coyote willow.	Russian-olive, silver buffaloberry.	Golden willow, Siberian elm.	Lombardy poplar, robusta cottonwood.
484 Orizaba	Big saltbush, fourwing saltbush.	Redosier dogwood, autumn-olive.	Russian-olive, white mulberry.	Black locust, golden willow.	Lombardy poplar, robusta cottonwood.
486*:					
Orizaba	Big saltbush, fourwing saltbush.	Redosier dogwood, autumn-olive.	Russian-olive, white mulberry.	Black locust, golden willow.	Lombardy poplar, Fremont cottonwood.
Delp	Cotoneaster, big saltbush.	California buckthorn, Tatarian honeysuckle.	Rocky Mountain juniper, singleleaf pinyon.	Siberian elm, green ash.	American elm, Fremont cottonwood.
514 Patna	Desert bitterbrush, skunkbush sumac.	American plum, California buckthorn.	Rocky Mountain juniper, singleleaf pinyon.	Green ash, Siberian elm.	Lombardy poplar, robusta cottonwood.
518 Patna	Desert bitterbrush, skunkbush sumac.	American plum, California buckthorn.	Rocky Mountain juniper, singleleaf pinyon.	Green ash, Siberian elm.	Lombardy poplar, robusta cottonwood.
521 Pizene	Big saltbush, fourwing saltbush.	Redosier dogwood, coyote willow.	Russian mulberry, silver buffaloberry.	Black locust, golden willow.	Fremont cottonwood, Lombardy poplar.
522*:					
Pizene	Big saltbush, fourwing saltbush.	Redosier dogwood, coyote willow.	Russian mulberry, silver buffaloberry.	Black locust, golden willow.	Fremont cottonwood, Lombardy poplar.
Orizaba	Big saltbush, fourwing saltbush.	Redosier dogwood, autumn-olive.	Russian-olive, white mulberry.	Black locust, golden willow.	Fremont cottonwood, Lombardy poplar.
523, 524 Pizene	Big saltbush, fourwing saltbush.	Redosier dogwood, coyote willow.	Russian mulberry, silver buffaloberry.	Black locust, golden willow.	Fremont cottonwood, Lombardy poplar.

See footnote at end of table.

TABLE 8.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
561 Rebel	Cotoneaster, golden currant.	Lilac, American plum.	Russian-olive, Utah juniper.	Blue spruce, golden willow.	American elm, robusta cottonwood.
591 Rose Creek	Cotoneaster, fourwing saltbush.	Arroyo willow, redosier dogwood.	Russian-olive, silver buffaloberry.	Golden willow, narrowleaf cottonwood.	Fremont cottonwood, robusta cottonwood.
601 Rusty	Big saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
603*:					
Rusty	Big saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
Isolde.					
604*:					
Rusty	Big saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
Playas.					
611 Sagouspe	Golden currant, common juniper.	Lilac, Siberian peashrub.	Rocky Mountain juniper, Utah juniper.	Common chokecherry, green ash.	Fremont cottonwood, robusta cottonwood.
612 Sagouspe	Big saltbush, common juniper.	Lilac, arroyo willow.	Silver buffaloberry, Russian-olive.	Siberian elm, green ash.	Robusta cottonwood, Fremont cottonwood.
613 Sagouspe	Fourwing saltbush, sierra currant.	Arroyo willow, coyote willow.	Russian-olive, silver buffaloberry.	Honeylocust, golden willow.	Lombardy poplar, Fremont cottonwood.
641, 642, 643 Tocan	Common juniper, cotoneaster.	Lilac, American plum.	Rocky Mountain juniper, silver buffaloberry.	Scotch pine, Siberian elm.	Giant sequoia, American elm.
644*:					
Tocan	Common juniper, cotoneaster.	Lilac, American plum.	Rocky Mountain juniper, silver buffaloberry.	Scotch pine, Siberian elm.	Giant sequoia, American elm.
Yerington.					
681 Yerington Variant	Common juniper, big saltbush.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Fremont cottonwood, Lombardy poplar.
721, 722, 723, 724 Wabuska	Fourwing saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Lombardy poplar, Fremont cottonwood.

See footnote at end of table.

TABLE 8.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
725*:					
Wabuska	Fourwing saltbush, common juniper.	Lilac, arroyo willow.	Russian-olive, silver buffaloberry.	Siberian elm, green ash.	Lombardy poplar, Fremont cottonwood.
Delp	Cotoneaster, big saltbush.	California buckthorn, Tatarian honeysuckle.	Rocky Mountain juniper, singleleaf pinyon.	Siberian elm, green ash.	American elm, Fremont cottonwood.
Playas.					
731, 732, 733, 734, 735 Hunewill	Common juniper, pyracantha.	American plum, oneseed juniper.	Alligator juniper, hawthorn.	Black locust, Japanese black pine.	American elm, Fremont cottonwood.
741*:					
Wedertz	Common juniper, sierra currant.	Lilac, American plum.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Fremont cottonwood, Lombardy poplar.
Wellington.					
Saralegui.					
742*, 743*:					
Wedertz	Common juniper, sierra currant.	Lilac, American plum.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Fremont cottonwood, Lombardy poplar.
Wellington.					
744*:					
Wedertz	Common juniper, sierra currant.	Lilac, American plum.	Rocky Mountain juniper, Utah juniper.	Green ash, golden willow.	Fremont cottonwood, Lombardy poplar.
Saralegui.					
Wellington.					
746*:					
Wellsed	Common juniper, pyracantha.	American plum, oneseed juniper.	Alligator juniper, Russian-olive.	Green ash, narrowleaf cottonwood.	Fremont cottonwood, Lombardy poplar.
Wedlar	Common juniper, pyracantha.	Mexican cliffrose, oneseed juniper.	Alligator juniper, Siberian crabapple.	Japanese black pine, honeylocust.	American elm, Lombardy poplar.
771*:					
Biddleman (gravelly sandy loam)	Fourwing saltbush, common juniper.	Siberian peashrub, oneseed juniper.	Russian-olive, Utah juniper.	Green ash, narrowleaf cottonwood.	Siberian elm, Fremont cottonwood.
Biddleman (very stony sandy loam)	Common juniper, fourwing saltbush.	Siberian peashrub, oneseed juniper.	Russian-olive, Utah juniper.	Green ash, narrowleaf cottonwood.	Siberian elm, Fremont cottonwood.
871*:					
Nall.					
Luppino.					
Hotsprings	Common juniper, cotoneaster.	Lilac, American plum.	Rocky Mountain juniper, hawthorn.	Scotch pine, Siberian elm.	Giant sequoia, American elm.

See footnote at end of table.

TABLE 8.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1021---------------- Springmeyer	Forsythia, pyracantha.	Lilac, American plum.	Russian-olive, Rocky Mountain juniper.	Ponderosa pine, honeylocust.	White poplar, American elm.
1074---------------- Hawsley	Common juniper, fourwing saltbush.	Lilac, American plum.	Russian-olive, silver buffaloberry.	Green ash, Siberian elm.	Fremont cottonwood, Lombardy poplar.
1075*: Hawsley------------	Common juniper, fourwing saltbush.	Lilac, American plum.	Russian-olive, silver buffaloberry.	Green ash, Siberian elm.	Fremont cottonwood, Lombardy poplar.
Playas.					
1083*: Stucky.					
Hunewill-----------	Common juniper, pyracantha.	American plum, oneseed juniper.	Alligator juniper, hawthorn.	Black locust, Japanese black pine.	American elm, Lombardy poplar.
Veta.					
1131---------------- Gamgee	Common juniper, pyracantha.	American plum, oneseed juniper.	Rocky Mountain juniper, Russian-olive.	Golden willow, green ash.	Fremont cottonwood, Lombardy poplar.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
101: Ackley	Slight	Slight	Moderate: small stones.	Slight.
102: Ackley	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight.
103*:				
Ackley	Slight	Slight	Moderate: small stones.	Slight.
Ackley Variant	Moderate: excess salt.	Moderate: excess salt.	Moderate: small stones, excess salt.	Slight.
121: Appian	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
122: Appian	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Severe: erodes easily.
123*:				
Appian	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
Wabuska	Severe: flooding, excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Severe: erodes easily.
124*:				
Appian	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
Delp	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
141: Bango	Severe: flooding, excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
142: Bango	Severe: flooding, small stones, excess sodium.	Severe: small stones, excess sodium.	Severe: small stones, excess sodium.	Slight.
151: Bluewing Variant	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.
161: Bluewing	Severe: flooding, small stones.	Severe: small stones.	Severe: small stones.	Severe: too sandy.
162: Bluewing	Severe: flooding, small stones.	Severe: small stones.	Severe: large stones, small stones.	Severe: small stones.
171*:				
Cagle	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
171*:				
Nosrac	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
181 Charlebois	Severe: flooding.	Slight	Slight	Moderate: dusty.
182 Charlebois	Severe: flooding.	Slight	Moderate: slope.	Moderate: dusty.
184 Charlebois	Severe: flooding.	Moderate: small stones.	Severe: small stones.	Moderate: dusty.
185 Charlebois	Severe: flooding.	Slight	Slight	Slight.
191*:				
Chill (8 to 15 percent slopes)	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Chill (15 to 30 percent slopes)	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope.
201 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight.
202 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: small stones, cemented pan.	Slight.
204 Cleaver	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: slope, small stones.	Slight.
206 Cleaver	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: large stones, small stones.	Slight.
207 Cleaver	Severe: slope, small stones, cemented pan.	Severe: slope, small stones, cemented pan.	Severe: large stones, slope, small stones.	Moderate: slope.
208*:				
Cleaver (2 to 4 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: small stones, cemented pan.	Slight.
Cleaver (4 to 15 percent slopes)	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: slope, small stones.	Slight.
209*:				
Cleaver (15 to 30 percent slopes)	Severe: slope, small stones, cemented pan.	Severe: slope, small stones, cemented pan.	Severe: slope, small stones, cemented pan.	Severe: small stones.
Cleaver (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones, cemented pan.	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
221 Dalzell	Severe: too sandy, excess salt.	Severe: too sandy, excess salt.	Severe: too sandy, excess salt.	Severe: too sandy.
223 Dalzell	Severe: excess salt.	Severe: excess salt.	Severe: excess salt.	Slight.
231*:				
Delp	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Lox	Severe: excess sodium.	Severe: excess sodium.	Severe: small stones, excess sodium.	Slight.
232*:				
Delp	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
Orizaba	Severe: flooding, excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Severe: erodes easily.
233 Delp	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
241*:				
Devada	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones.
Rock outcrop.				
242*:				
Devada	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Rock outcrop.				
251 Dia	Severe: flooding.	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.
252 Dia	Severe: flooding.	Slight	Slight	Slight.
253 Dia	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
254*:				
Dia	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
Dithod (clay loam, wet)	Severe: flooding, excess salt.	Severe: excess salt.	Severe: excess salt.	Moderate: wetness.
Dithod (loam, saline-alkali)	Severe: flooding, excess salt.	Severe: excess salt.	Severe: excess salt.	Moderate: wetness, dusty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
255*:				
Dia	Severe: flooding.	Moderate: wetness, dusty.	Moderate: wetness, flooding, dusty.	Severe: erodes easily.
Dithod	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: flooding.
256*:				
Dia	Severe: flooding.	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.
Sagouspe (sandy loam)	Severe: flooding.	Slight	Slight	Slight.
Sagouspe (loamy sand)	Severe: flooding.	Slight	Slight	Slight.
261 Dithod	Severe: flooding.	Moderate: dusty.	Slight	Moderate: dusty.
262 Dithod	Severe: flooding.	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.
263 Dithod	Severe: flooding, excess salt.	Severe: excess salt.	Severe: excess salt.	Moderate: wetness.
264 Dithod	Severe: flooding, excess salt.	Severe: excess salt.	Severe: excess salt.	Moderate: wetness, dusty.
265 Dithod	Severe: flooding.	Slight	Slight	Slight.
268 Dithod	Severe: flooding, excess salt.	Severe: excess salt.	Severe: excess salt.	Moderate: wetness.
269*:				
Dithod	Severe: flooding.	Moderate: dusty.	Slight	Moderate: dusty.
Sagouspe	Severe: flooding.	Slight	Slight	Slight.
Dia	Severe: flooding.	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.
271 East Fork	Severe: flooding.	Slight	Slight	Severe: erodes easily.
272 East Fork	Severe: flooding.	Slight	Moderate: small stones, flooding.	Moderate: dusty.
274 East Fork	Severe: flooding.	Slight	Slight	Slight.
275 East Fork	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: excess sodium, excess salt.	Slight.
276 East Fork	Severe: flooding.	Slight	Slight	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
277 East Fork	Severe: flooding.	Moderate: small stones.	Severe: small stones.	Slight.
291 Fallon	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
292 Fallon	Severe: flooding.	Moderate: excess salt.	Moderate: excess salt.	Slight.
293 Fallon	Severe: flooding.	Moderate: flooding, excess salt.	Severe: flooding.	Severe: erodes easily.
294 Fallon	Severe: flooding, excess salt.	Severe: excess salt.	Severe: excess salt.	Severe: erodes easily.
295 Fallon	Severe: flooding.	Moderate: flooding, excess salt.	Severe: flooding.	Severe: erodes easily.
301 Fernley	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Slight.
302 Fernley	Severe: flooding, too sandy.	Slight	Slight	Slight.
311 Fulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, small stones.	Moderate: large stones, dusty.
312 Fulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, slope, small stones.	Moderate: large stones, dusty.
313*:				
Fulstone (4 to 15 percent slopes)	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: large stones, slope, small stones.	Moderate: large stones.
Fulstone (15 to 30 percent slopes)	Severe: slope, small stones, cemented pan.	Severe: slope, small stones, cemented pan.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.
314*:				
Fulstone (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, slope, small stones.	Moderate: large stones, dusty.
Reno	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.
Fulstone (15 to 30 percent slopes)	Severe: slope, cemented pan.	Severe: slope, cemented pan.	Severe: slope, small stones.	Moderate: large stones, slope.
315*:				
Fulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, small stones.	Moderate: large stones, dusty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
315*:				
Stucky	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: small stones.
321 Haybourne	Severe: flooding.	Slight	Moderate: small stones.	Slight.
331*:				
Hocar	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope, dusty.
Rock outcrop.				
341 Holbrook	Severe: flooding.	Moderate: slope, small stones.	Severe: large stones, slope, small stones.	Slight.
343*:				
Holbrook	Severe: flooding.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight.
Hotsprings	Moderate: small stones.	Moderate: too sandy.	Severe: small stones.	Moderate: too sandy.
344*:				
Holbrook	Severe: flooding.	Moderate: small stones.	Severe: slope, small stones.	Slight.
Shree	Severe: flooding, small stones.	Severe: small stones.	Severe: slope, small stones.	Slight.
345*:				
Holbrook Variant	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
Rock outcrop.				
352 Hotsprings	Slight	Moderate: too sandy.	Moderate: slope, small stones.	Moderate: too sandy.
353 Hotsprings	Moderate: small stones.	Moderate: too sandy.	Severe: small stones.	Moderate: too sandy.
354*:				
Hotsprings	Moderate: small stones.	Moderate: too sandy.	Severe: small stones.	Moderate: too sandy.
Holbrook	Severe: flooding, small stones.	Severe: small stones.	Severe: large stones, small stones.	Moderate: large stones.
361 Hough	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
371*:				
Hyloc	Severe: slope, large stones, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones.
Inter	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.
372*:				
Hyloc	Severe: slope, large stones, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Inter	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.
Rock outcrop.				
391, 392 Juva	Severe: flooding.	Moderate: small stones.	Severe: small stones.	Slight.
401 Lahontan	Severe: flooding.	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.
411 Lapon	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones, slope, dusty.
412*:				
Lapon	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones, slope, dusty.
Rubble land.				
Rock outcrop.				
413*:				
Lapon	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones, dusty.
Fulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, small stones.	Moderate: large stones, dusty.
Old Camp	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: large stones.
441 Lunder	Severe: large stones, cemented pan.	Severe: large stones, cemented pan.	Severe: large stones, slope, small stones.	Severe: large stones.
451 Obanion	Severe: wetness, excess sodium, excess salt.	Severe: wetness, excess sodium, excess salt.	Severe: wetness, excess sodium, excess salt.	Severe: wetness.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
452: Obanion	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
453: Obanion	Severe: wetness, excess sodium, excess salt.	Severe: wetness, excess sodium, excess salt.	Severe: wetness, excess sodium, excess salt.	Severe: wetness.
462*:				
Olac	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Severe: large stones.
Rock outcrop.				
464*:				
Olac	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Rock outcrop.				
466*:				
Olac	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Inter	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.
Rock outcrop.				
471*:				
Oppio	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.
Nosrac	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
481, 482: Orizaba	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: flooding, excess sodium, excess salt.	Severe: erodes easily.
483: Orizaba	Severe: flooding, excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Severe: erodes easily.
484: Orizaba	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: flooding, excess sodium, excess salt.	Severe: erodes easily.
486*:				
Orizaba	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: flooding, excess sodium, excess salt.	Severe: erodes easily.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
486*:				
Delp	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
491 Otomo	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones, cemented pan.	Slight.
501 Parran	Severe: excess salt.	Severe: excess salt.	Severe: excess salt.	Severe: erodes easily.
511 Patna	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
512 Patna	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: too sandy.
514 Patna	Slight	Slight	Slight	Slight.
516 Patna	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
517*:				
Patna	Slight	Slight	Slight	Slight.
Hough	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
Playas.				
518 Patna	Severe: flooding.	Slight	Moderate: flooding.	Slight.
519 Patna	Slight	Slight	Slight	Slight.
521 Pizene	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
522*:				
Pizene	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
Orizaba	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: flooding, excess sodium, excess salt.	Severe: erodes easily.
523 Pizene	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Severe: erodes easily.
524 Pizene	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
531, 532 Perazzo	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Moderate: dusty.
534 Perazzo	Severe: small stones.	Severe: small stones.	Severe: slope, small stones.	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
535 Perazzo	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.
541*:				
Uripnes	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.	Severe: slope, small stones.
Chill	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Rock outcrop.				
551 Rawe	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Severe: erodes easily.
552*:				
Rawe (gravelly sandy loam)	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Severe: erodes easily.
Rawe (loamy sand)	Slight	Slight	Moderate: slope.	Slight.
553*:				
Rawe	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Severe: erodes easily.
Malpais	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight.
561 Rebel	Slight	Slight	Slight	Slight.
571 Reno	Moderate: small stones, percs slowly.	Moderate: small stones, percs slowly.	Severe: small stones.	Slight.
572 Reno	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.
581 Risue	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: large stones, slope, small stones.	Severe: small stones.
582 Risue	Severe: cemented pan.	Severe: cemented pan.	Severe: small stones.	Moderate: dusty.
591 Rose Creek	Severe: flooding.	Moderate: flooding, wetness, dusty.	Severe: flooding.	Severe: erodes easily.
601 Rusty	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: too sandy.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
603*:				
Rusty	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: too sandy.
Isolde	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
604*:				
Rusty	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: too sandy.
Playas.				
611 Sagouspe	Severe: flooding.	Slight	Slight	Slight.
612 Sagouspe	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: excess sodium, excess salt.	Slight.
613 Sagouspe	Severe: flooding.	Moderate: wetness, dusty.	Moderate: small stones, wetness, flooding.	Severe: erodes easily.
621 Saralegui	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
623 Saralegui	Slight	Slight	Severe: slope.	Slight.
625 Saralegui	Slight	Slight	Moderate: small stones.	Slight.
626 Saralegui	Slight	Slight	Moderate: slope, small stones.	Slight.
627 Saralegui Variant	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: small stones, percs slowly.	Slight.
631 Singatse	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
632*:				
Singatse	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Rock outcrop.				

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
633*:				
Singatse	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Theon	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.
641 Tocan	Slight	Slight	Moderate: small stones.	Slight.
642 Tocan	Slight	Slight	Moderate: slope, small stones.	Slight.
643 Tocan	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Slight.
644*:				
Tocan	Slight	Slight	Moderate: slope, small stones.	Slight.
Yerington	Slight	Slight	Moderate: slope.	Slight.
651 Theon	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.
652*:				
Theon (30 to 50 percent slopes)	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.
Theon (50 to 75 percent slopes)	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Olac	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
653*:				
Theon	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.
Lapon	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.
Olac	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
654*:				
Theon----------------	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Rock outcrop.				
Old Camp-------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: large stones, slope.
655*:				
Theon----------------	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Yerington------------	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Slight.
661------------------- Isolde	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
662*:				
Isolde---------------	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
Patna----------------	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
663------------------- Isolde	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
671------------------- Toulon	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Moderate: dusty.
681------------------- Yerington Variant	Severe: excess salt.	Severe: excess salt.	Severe: excess salt.	Severe: erodes easily.
691------------------- Ultra	Severe: excess sodium.	Severe: excess sodium.	Severe: small stones, excess sodium.	Slight.
701------------------- Veta	Severe: small stones.	Severe: small stones.	Severe: small stones.	Slight.
702------------------- Veta	Severe: flooding, small stones.	Severe: small stones.	Severe: small stones.	Slight.
704------------------- Veta	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.
711*:				
Vylach---------------	Severe: cemented pan.	Severe: cemented pan.	Severe: small stones, cemented pan.	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
711*:				
Weena	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.
721 Wabuska	Severe: flooding, excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight.
722 Wabuska	Severe: flooding, excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Severe: erodes easily.
723, 724 Wabuska	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: erodes easily.
725*:				
Wabuska	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: erodes easily.
Delp	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
Playas.				
731 Hunewill	Severe: excess salt.	Severe: excess salt.	Severe: slope, excess salt.	Slight.
732 Hunewill	Severe: excess salt.	Severe: excess salt.	Severe: slope, small stones, excess salt.	Moderate: dusty.
733 Hunewill	Severe: slope, excess salt.	Severe: slope, excess salt.	Severe: slope, small stones, excess salt.	Moderate: slope, dusty.
734 Hunewill	Severe: small stones.	Severe: small stones.	Severe: small stones.	Severe: small stones.
735 Hunewill	Severe: small stones.	Severe: small stones.	Severe: slope, small stones.	Severe: small stones.
741*:				
Wedertz	Slight	Slight	Moderate: small stones.	Slight.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight.
Saralegui	Slight	Slight	Moderate: small stones.	Slight.
742*:				
Wedertz	Slight	Slight	Moderate: slope, small stones.	Slight.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
743*:				
Wedertz	Slight	Slight	Severe: slope.	Slight.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Slight.
744*:				
Wedertz	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Saralegui	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Slight.
746*:				
Wellsed	Severe: too sandy.	Severe: too sandy.	Severe: small stones, too sandy.	Severe: too sandy.
Wedlar	Slight	Slight	Moderate: slope, small stones.	Slight.
751 Malpais	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight.
753. Malpais				
754*:				
Malpais (gravelly sandy loam)	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight.
Malpais. (stony sandy loam)				
755*:				
Malpais	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Slight.
Yerington	Slight	Slight	Severe: slope.	Slight.
761 Yerington	Slight	Slight	Slight	Slight.
762 Yerington	Slight	Slight	Moderate: slope.	Slight.
763 Yerington	Slight	Slight	Severe: slope.	Slight.
764 Yerington	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
765, 766 Yerington	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight.
767 Yerington	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
771*:				
Biddleman (gravelly sandy loam)	Severe: excess sodium.	Severe: excess sodium.	Severe: small stones, excess sodium.	Slight.
Biddleman (very stony sandy loam)	Severe: excess sodium.	Severe: excess sodium.	Severe: large stones, slope, small stones.	Moderate: large stones.
781 Celeton	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Moderate: slope.
782*:				
Weena	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, erodes easily.
Malpais.				
791*:				
Flex	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Duco	Severe: slope, large stones, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
792*:				
Pirouette	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: large stones, small stones.	Moderate: large stones, dusty.
Osobb	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.
Rock outcrop.				
793 Pirouette	Severe: slope, large stones, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones.
802*:				
Loomer	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones.
Zephan	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
Olac	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
803*:				
Loomer----------------- (15 to 30 percent slopes)	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones.
Loomer----------------- (30 to 50 percent slopes)	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
811*:				
Trid----------------- (30 to 50 percent slopes)	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Trid----------------- (4 to 15 percent slopes)	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
Drit-----------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
812*:				
Trid-----------------	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.
Roloc-----------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Drit-----------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
821*. Badland				
822*. Dumps				
823*. Gypsum land				
824*, 825*. Pits				
826*. Playas				
827*. Slickens				
831*:				
Ister-----------------	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.
Hyloc-----------------	Severe: slope, large stones, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
831*:				
Lunder	Severe: large stones, cemented pan.	Severe: large stones, cemented pan.	Severe: large stones, slope, small stones.	Severe: large stones.
841*:				
Bradshaw	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Hartig	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.
851*:				
Tenpin	Severe: small stones.	Severe: small stones.	Severe: slope, small stones.	Moderate: dusty.
Shree	Severe: flooding, small stones.	Severe: small stones.	Severe: slope, small stones.	Slight.
861 Shree	Severe: flooding, small stones.	Severe: small stones.	Severe: slope, small stones.	Slight.
871*:				
Nall	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Luppino	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Hotsprings	Slight	Slight	Moderate: slope, small stones.	Slight.
881*:				
Hovenell Variant	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Devils Variant	Moderate: slope, small stones, percs slowly.	Moderate: slope, small stones, percs slowly.	Severe: slope, small stones.	Slight.
891*:				
Berit	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope.
Snoken	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.	Severe: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
892*:				
Berit	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Shoken	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.	Severe: slope.
893*:				
Berit	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Saralegui	Slight	Slight	Severe: slope.	Slight.
911*:				
Wulstone Variant	Severe: large stones.	Severe: large stones.	Severe: large stones, small stones.	Severe: large stones.
Devils	Severe: large stones.	Severe: large stones.	Severe: large stones, slope, small stones.	Moderate: large stones, dusty.
Glean	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: large stones, slope.	Moderate: large stones.
921*:				
Glean	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight.
Devils	Severe: large stones.	Severe: large stones.	Severe: large stones, slope, small stones.	Moderate: large stones, dusty.
922*:				
Glean	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.
Devils	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Moderate: large stones, slope, dusty.
Rock outcrop.				
923*:				
Glean	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.
Tisino	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.
Hartig	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
932*:				
Shoken	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.	Severe: slope.
Rock outcrop.				
951*:				
Koontz	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
Ravenell	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: dusty.
Haar	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope, dusty.
961 Luppino	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones, depth to rock.	Slight.
971*:				
Minneha	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.
Drit	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.
Rock outcrop.				
972*:				
Minneha	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.
Berit	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
Wile	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope.
981 Ravenell	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope, dusty.
982*:				
Ravenell	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope, dusty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
982*:				
Haar	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Rock outcrop.				
991*:				
Roloc	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Drit	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
1001 Rowel	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: small stones.
1002*:				
Rowel	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
Rock outcrop.				
1011 Smedley	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: small stones.	Slight.
1012 Smedley	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones.	Slight.
1013*:				
Smedley (2 to 4 percent slopes)	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: small stones.	Slight.
Smedley (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones.	Slight.
1014*:				
Smedley (15 to 30 percent slopes)	Severe: slope, cemented pan.	Severe: slope, cemented pan.	Severe: large stones, slope, small stones.	Moderate: slope.
Smedley (4 to 15 percent slopes)	Severe: small stones, cemented pan.	Severe: small stones, cemented pan.	Severe: slope, small stones.	Slight.
1021 Springmeyer	Slight	Slight	Moderate: slope.	Slight.
1031*:				
Burnborough	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
1031*:				
Glean	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
1041*:				
Whichman	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.
Inter	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.
Rock outcrop.				
1051 Zyzzi	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope.
1072 Hawsley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
1073*:				
Hawsley	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
Gamgee	Severe: excess sodium.	Severe: excess sodium.	Severe: slope, small stones, excess sodium.	Slight.
1074 Hawsley	Slight	Slight	Slight	Slight.
1075*:				
Hawsley	Slight	Slight	Slight	Slight.
Playas.				
1081 Stucky	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Severe: small stones.
1082*:				
Stucky (8 to 15 percent slopes)	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.
Stucky (15 to 30 percent slopes)	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.
1083*:				
Stucky	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: small stones.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
1083*:				
Hunewill	Severe: slope, excess salt.	Severe: slope, excess salt.	Severe: slope, small stones, excess salt.	Moderate: slope, dusty.
Veta	Severe: small stones.	Severe: small stones.	Severe: small stones.	Slight.
1091*:				
Olean Variant	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
Hartig Variant	Severe: slope, small stones, too sandy.	Severe: slope, too sandy, small stones.	Severe: slope, small stones, too sandy.	Severe: too sandy, slope, small stones.
Rubble land.				
1103*:				
Mirkwood	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.
Nemico	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Slight.
1110*:				
Surgem	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
Olac	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Cagle	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.
1121*:				
Duco	Severe: slope, large stones, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Nosrac	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
1131 Gamgee	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: slope, small stones, too sandy.	Severe: too sandy.
1141*:				
Old Camp	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: large stones, slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
1141*:				
Mirkwood-------------	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
Nemico---------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: slope.
1142*:				
Old Camp-------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: large stones.
Holbrook Variant------	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.
1143*:				
Old Camp-------------	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope.	Severe: large stones.
Reno Variant----------	Severe: slope, cemented pan.	Severe: slope, cemented pan.	Severe: large stones, slope, cemented pan.	Severe: slope.
Hyloc----------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Moderate: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
101, 102----------- Ackley	Slight-----------	Moderate: shrink-swell.	Slight-----------	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.
103*:					
Ackley-----------	Slight-----------	Moderate: shrink-swell.	Slight-----------	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.
Ackley Variant---	Slight-----------	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.
121, 122----------- Appian	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight-----------	Slight.
123*:					
Appian-----------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight-----------	Slight.
Wabuska-----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
124*:					
Appian-----------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight-----------	Slight.
Delp-------------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
141, 142----------- Bango	Slight-----------	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength, flooding, shrink-swell.
151--------------- Bluewing Variant	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
161, 162----------- Bluewing	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
171*:					
Cagle------------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.
Nosrac-----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
181, 182, 184, 185-------------- Charlebois	Slight-----------	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
191*:					
Chill------------ (8 to 15 percent slopes)	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
191*:					
Chill (15 to 30 percent slopes)	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
201, 202 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
204 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.
206 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
207 Cleaver	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.
208*:					
Cleaver (2 to 4 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Cleaver (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.
209*:					
Cleaver (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.
Cleaver (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.
221, 223 Dalzell	Severe: cutbanks cave.	Slight	Moderate: wetness, cemented pan.	Slight	Moderate: frost action.
231*:					
Delp	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Lox	Slight	Slight	Slight	Slight	Slight.
232*:					
Delp	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
Orizaba	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength.
233 Delp	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
241*:					
Devada	Severe: depth to rock.	Severe: shrink-swell, depth to rock.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, slope, depth to rock.	Severe: depth to rock, low strength.
Rock outcrop.					

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
242*:					
Devada	Severe: depth to rock, slope.	Severe: shrink-swell, slope, depth to rock.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope, depth to rock.	Severe: depth to rock, low strength, slope.
Rock outcrop.					
251, 252 Dia	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
253 Dia	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: frost action.
254*:					
Dia	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: frost action.
Dithod (clay loam, wet)	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: frost action.
Dithod (loam, saline-alkali)	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: frost action.
255*:					
Dia	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.
Dithod	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.
256*:					
Dia	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
Sagouspe (sandy loam)	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
Sagouspe (loamy sand)	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
261 Dithod	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
262 Dithod	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
263, 264 Dithod	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: frost action.
265 Dithod	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
268---------------- Dithod	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: frost action.
269*:					
Dithod------------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
Sagouspe----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
Dia---------------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
271---------------- East Fork	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, frost action.
272---------------- East Fork	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding, frost action.
274, 275----------- East Fork	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, frost action.
276---------------- East Fork	Moderate: too clayey, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, frost action.
277---------------- East Fork	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, frost action.
291, 292----------- Fallon	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
293---------------- Fallon	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, frost action.
294---------------- Fallon	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
295---------------- Fallon	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, frost action.
301---------------- Fernley	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding, frost action.
302---------------- Fernley	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
311---------------- Fulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
312---------------- Fulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
313*:					
Pulstone (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.
Pulstone (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.
314*:					
Pulstone (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.
Reno	Severe: cemented pan.	Severe: shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.
Pulstone (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.	Severe: slope, cemented pan.	Severe: cemented pan, slope.
315*:					
Pulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Stucky	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
321 Haybourne	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
331*:					
Hocar	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
341 Holbrook	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding, slope.	Moderate: slope, flooding, frost action.
343*:					
Holbrook	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding, slope.	Moderate: slope, flooding, frost action.
Hotsprings	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Moderate: frost action.
344*:					
Holbrook	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
Shree	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
345*:					
Holbrook Variant	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
345*:					
Rock outcrop.					
352 Hotsprings	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Moderate: frost action.
353 Hotsprings	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: frost action.
354*:					
Hotsprings	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: frost action.
Holbrook	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
361 Hough	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
371*:					
Hyloc	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.
Ister	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
372*:					
Hyloc	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.
Ister	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
391, 392 Juva	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
401 Lahontan	Moderate: too clayey.	Severe: flooding, shrink-swell.	Severe: flooding, shrink-swell.	Severe: flooding, shrink-swell.	Severe: low strength, shrink-swell.
411 Lapon	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.
412*:					
Lapon	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.
Rubble land.					
Rock outcrop.					

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
413*:					
Lapon	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: slope, depth to rock, cemented pan.	Severe: depth to rock, cemented pan.
Fulstone	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Old Camp	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
441 Lunder	Severe: cemented pan, large stones.	Severe: cemented pan, large stones.	Severe: cemented pan, large stones.	Severe: slope, cemented pan, large stones.	Severe: cemented pan, large stones.
451 Obanion	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.
452 Obanion	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: frost action.
453 Obanion	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.
462*:					
Olac	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
Rock outcrop.					
464*:					
Olac	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Rock outcrop.					
466*:					
Olac	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Ister	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
471*:					
Oppio	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.
Nosrac	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
481, 482 Orizaba	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
483------------- Orizaba	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength.
484------------- Orizaba	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
486*:					
Orizaba----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
Delp-------------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
491------------- Otomo	Severe: cemented pan, cutbanks cave.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.
501------------- Parran	Moderate: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, frost action, shrink-swell.
511------------- Patna	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
512------------- Patna	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
514, 516--------- Patna	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
517*:					
Patna------------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
Hough------------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
Playas.					
518------------- Patna	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
519------------- Patna	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
521------------- Pizene	Slight-----------	Slight-----------	Slight-----------	Slight------------	Slight.
522*:					
Pizene-----------	Slight-----------	Slight-----------	Slight-----------	Slight------------	Slight.
Orizaba----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
523, 524--------- Pizene	Slight-----------	Slight-----------	Slight-----------	Slight------------	Slight.
531------------- Perazzo	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
532------------- Perazzo	Severe: cutbanks cave.	Slight-----------	Slight-----------	Moderate: slope.	Slight.
534------------- Perazzo	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
535----------------- Perazzo	Severe: cutbanks cave.	Slight-----------	Slight-----------	Moderate: slope.	Slight.
541*:					
Uripnes-----------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Chill-------------	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.
Rock outcrop.					
551----------------- Rawe	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
552*:					
Rawe-------------- (gravelly sandy loam)	Slight-----------	Slight-----------	Slight-----------	Slight------------	Slight.
Rawe-------------- (loamy sand)	Slight-----------	Slight-----------	Slight-----------	Slight------------	Slight.
553*:					
Rawe--------------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Malpais-----------	Moderate: large stones, slope.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.
561----------------- Rebel	Slight-----------	Slight-----------	Slight-----------	Slight------------	Moderate: frost action.
571----------------- Reno	Severe: cemented pan.	Severe: shrink-swell.	Severe: cemented pan.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
572----------------- Reno	Severe: cemented pan.	Severe: shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.
581----------------- Risue	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell, slope, cemented pan.	Severe: cemented pan, low strength, shrink-swell.
582----------------- Risue	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell, cemented pan.	Severe: cemented pan, low strength, shrink-swell.
591----------------- Rose Creek	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.
601----------------- Rusty	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
603*:					
Rusty-------------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
Isolde------------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
604*:					
Rusty	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
Playas.					
611, 612 Sagouspe	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
613 Sagouspe	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.
621 Saralegui	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: frost action.
623 Saralegui	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Moderate: frost action.
625 Saralegui	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: frost action.
626 Saralegui	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: frost action.
627 Saralegui Variant	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: frost action.
631 Singatse	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
632*:					
Singatse	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Rock outcrop.					
633*:					
Singatse	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Theon	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
641, 642 Tocan	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
643 Tocan	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
644*:					
Tocan	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
Yerington	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
651 Theon	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
652*:					
Theon (30 to 50 percent slopes)	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Theon (50 to 75 percent slopes)	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Olac	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
653*:					
Theon	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Lapon	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.
Olac	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
654*:					
Theon	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Rock outcrop.					
Old Camp	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
655*:					
Theon	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
Yerington	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
661 Isolde	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
662*:					
Isolde	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
Patna	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
663 Isolde	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
671 Toulon	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.
681 Yerington Variant	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
691 Ultra	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
701 Veta	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action, large stones.
702 Veta	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
704 Veta	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.
711*:					
Vylach	Severe: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: slope, cemented pan.	Moderate: cemented pan.
Weena	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
721, 722, 723, 724 Wabuska	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
725*:					
Wabuska	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.
Delp	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Playas.					
731 Hunewill	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action, large stones.
732 Hunewill	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.
733 Hunewill	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
734 Hunewill	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action, large stones.
735 Hunewill	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.
741*:					
Wedertz	Slight	Moderate: shrink-swell.	Slight	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
741*:					
Saralegui	Severe: cutbanks cave.	Slight	Slight	Slight	Moderate: frost action.
742*:					
Wedertz	Slight	Moderate: shrink-swell.	Slight	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
743*:					
Wedertz	Slight	Moderate: shrink-swell.	Slight	Moderate: shrink-swell, slope.	Moderate: frost action, shrink-swell.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
744*:					
Wedertz	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action, shrink-swell.
Saralegui	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.
746*:					
Wellsed	Severe: cemented pan, cutbanks cave.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: slope, cemented pan.	Moderate: cemented pan, frost action.
Wedlar	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.
751 Malpais	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.
753 Malpais	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.
754*:					
Malpais (gravelly sandy loam)	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.
Malpais (stony sandy loam)	Moderate: large stones, slope.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.
755*:					
Malpais	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
755*:					
Yerington	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
761, 762 Yerington	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
763 Yerington	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
764 Yerington	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
765, 766 Yerington	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
767 Yerington	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
771*:					
Biddleman (gravelly sandy loam)	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
Biddleman (very stony sandy loam)	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
781 Celeton	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
782*:					
Weena	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Malpais	Moderate: large stones, slope.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.
791*:					
Plex	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Duco	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
792*:					
Pirouette	Severe: depth to rock, cemented pan.	Severe: depth to rock.	Severe: depth to rock, cemented pan.	Severe: depth to rock.	Severe: depth to rock.
Osobb	Severe: depth to rock, cemented pan, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
Rock outcrop.					
793 Pirouette	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock.	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
802*:					
Loomer	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
Zephan	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.
Olac	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
803*:					
Loomer (15 to 30 percent slopes)	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
Loomer (30 to 50 percent slopes)	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
811*:					
Trid (30 to 50 percent slopes)	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Trid (4 to 15 percent slopes)	Moderate: depth to rock, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Moderate: slope, frost action, shrink-swell.
Drit	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
812*:					
Trid	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Roloc	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Drit	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
821*. Badland					
822*. Dumps					
823*. Gypsum land					
824*, 825*. Pits					
826*. Playas					
827*. Slickens					

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
831*:					
Ister	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Hyloc	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.
Lunder	Severe: cemented pan, large stones.	Severe: cemented pan, large stones.	Severe: cemented pan, large stones.	Severe: slope, cemented pan, large stones.	Severe: cemented pan, large stones.
841*:					
Bradshaw	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
Hartig	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
851*:					
Tenpin	Moderate: too clayey, large stones.	Moderate: shrink-swell, large stones.	Moderate: large stones.	Moderate: shrink-swell, slope, large stones.	Moderate: shrink-swell, large stones.
Shree	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
861 Shree	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.
871*:					
Nall	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.
Luppino	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.
Hotsprings	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Moderate: frost action.
881*:					
Ravenell Variant	Severe: depth to rock.	Severe: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.
Devils Variant	Moderate: depth to rock, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Moderate: slope, frost action, shrink-swell.
891*, 892*:					
Berit	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
891*, 892*:					
Shoken	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
893*:					
Berit	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.
Saralegui	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Moderate: frost action.
911*:					
Fulstone Variant	Severe: cemented pan.	Severe: shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
Devils	Moderate: depth to rock, large stones, slope.	Moderate: shrink-swell, slope, large stones.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Moderate: slope, frost action, shrink-swell.
Glean	Moderate: depth to rock, large stones, slope.	Moderate: slope, large stones.	Moderate: depth to rock, slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.
921*:					
Glean	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.
Devils	Moderate: depth to rock, large stones, slope.	Moderate: shrink-swell, slope, large stones.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Moderate: slope, frost action, shrink-swell.
922*:					
Glean	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Devils	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
923*:					
Glean	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Ticino	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hartig	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
932*:					
Shoken	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Rock outcrop.					

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
951*:					
Koontz------------	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.
Ravenell----------	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.
Haar--------------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
961---------------- Luppino	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.
971*:					
Minneha-----------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Drit--------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
972*:					
Minneha-----------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Berit-------------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Wile--------------	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.
981---------------- Ravenell	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
982*:					
Ravenell----------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Haar--------------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
991*:					
Roloc-------------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Drit--------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
1001------------ Rowel	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
1002*:					
Rowel-----------	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
Rock outcrop.					
1011, 1012-------- Smedley	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan, low strength.
1013*:					
Smedley---------- (2 to 4 percent slopes)	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan, low strength.
Smedley---------- (4 to 15 percent slopes)	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan.	Severe: shrink-swell, slope, cemented pan.	Severe: cemented pan, low strength.
1014*:					
Smedley---------- (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: shrink-swell, slope, cemented pan.	Severe: cemented pan, slope.	Severe: shrink-swell, slope, cemented pan.	Severe: cemented pan, low strength, slope.
Smedley---------- (4 to 15 percent slopes)	Severe: cemented pan.	Severe: shrink-swell, cemented pan.	Severe: cemented pan.	Severe: shrink-swell, slope, cemented pan.	Severe: cemented pan, low strength.
1021------------ Springmeyer	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.
1031*:					
Burnborough------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Glean-----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
1041*:					
Whichman---------	Severe: cutbanks cave, large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
Ister-----------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
1051------------ Zyzzi	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
1072------------ Hawsley	Severe: cutbanks cave.	Slight----------	Slight----------	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
1073*:					
Hawsley----------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Gamgee-----------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
1074-------------- Hawsley	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
1075*:					
Hawsley----------	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
Playas.					
1081-------------- Stucky	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.
1082*:					
Stucky----------- (8 to 15 percent slopes)	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.
Stucky----------- (15 to 30 percent slopes)	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
1083*:					
Stucky-----------	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.
Hunewill---------	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Veta-------------	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: frost action, large stones.
1091*:					
Olean Variant----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hartig Variant---	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Rubble land.					
1103*:					
Mirkwood---------	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Nemico-----------	Severe: depth to rock, cemented pan.	Severe: depth to rock.	Severe: depth to rock, cemented pan.	Severe: depth to rock.	Severe: depth to rock.
1110*:					
Surgem-----------	Severe: depth to rock, large stones, slope.	Severe: slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
1110*:					
Olac	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Cagle	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.
1121*:					
Duco	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
Nosrac	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
1131: Gamgee	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: slope, shrink-swell.
1141*:					
Old Camp	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
Mirkwood	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Nemico	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock.	Severe: depth to rock, cemented pan, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
1142*:					
Old Camp	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.
Holbrook Variant	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.
1143*:					
Old Camp	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, large stones.
Reno Variant	Severe: depth to rock, cemented pan, slope.	Severe: slope.	Severe: depth to rock, cemented pan, slope.	Severe: slope.	Severe: slope.
Hyloc	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
101, 102 Ackley	Moderate: percs slowly.	Severe: seepage.	Slight	Slight	Good.
103*:					
Ackley	Moderate: percs slowly.	Severe: seepage.	Slight	Slight	Good.
Ackley Variant	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: thin layer.
121, 122 Appian	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
123*:					
Appian	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
Wabuska	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness, too sandy, excess sodium.	Severe: wetness.	Poor: too sandy, excess sodium.
124*:					
Appian	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
Delp	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
141, 142 Bango	Severe: percs slowly.	Severe: flooding.	Moderate: flooding.	Moderate: flooding.	Good.
151 Bluewing Variant	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
161, 162 Bluewing	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, too sandy.	Severe: flooding.	Poor: seepage, too sandy, small stones.
171*:					
Cagle	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Nosrac	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
181, 182, 184, 185 Charlebois	Moderate: flooding, percs slowly.	Severe: flooding.	Moderate: flooding.	Moderate: flooding.	Good.
191*:					
Chill (8 to 15 percent slopes)	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
191*:					
Chill (15 to 30 percent slopes)	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
201 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim.
202 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, small stones.
204 Cleaver	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, small stones.
206 Cleaver	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, small stones.
207 Cleaver	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: area reclaim, small stones, slope.
208*:					
Cleaver (2 to 4 percent slopes)	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, small stones.
Cleaver (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, small stones.
209*:					
Cleaver (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: area reclaim, small stones, slope.
Cleaver (4 to 15 percent slopes)	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, small stones.
221, 223 Dalzell	Severe: cemented pan, wetness.	Severe: seepage, cemented pan.	Severe: wetness, too sandy.	Severe: cemented pan.	Poor: area reclaim, seepage, too sandy.
231*:					
Delp	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
Lox	Slight	Severe: seepage.	Slight	Slight	Poor: seepage, small stones.
232*:					
Delp	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Slight	Poor: too sandy.
Orizaba	Severe: percs slowly.	Severe: flooding.	Severe: too sandy, excess sodium, excess salt.	Moderate: flooding.	Poor: too sandy, excess salt, excess sodium.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
233------------------ Delp	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
241*:					
Devada-------------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: area reclaim, too clayey, hard to pack.
Rock outcrop.					
242*:					
Devada-------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Rock outcrop.					
251, 252------------ Dia	Severe: wetness, percs slowly, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
253----------------- Dia	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
254*:					
Dia-----------------	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
Dithod------------- (clay loam, wet)	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, excess salt.	Severe: wetness.	Fair: too clayey, too sandy, wetness.
Dithod------------- (loam, saline-alkaline)	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, excess salt.	Severe: wetness.	Fair: too clayey, too sandy, wetness.
255*:					
Dia-----------------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy.
Dithod-------------	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, too sandy, wetness.
256*:					
Dia-----------------	Severe: wetness, percs slowly, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
Sagouspe----------- (sandy loam)	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
256*:					
Sagouspe----------- (loamy sand)	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy.
261----------------- Dithod	Severe: wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: too clayey, wetness.
262----------------- Dithod	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
263, 264------------ Dithod	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, excess salt.	Severe: wetness.	Fair: too clayey, too sandy, wetness.
265----------------- Dithod	Severe: wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: too clayey, wetness.
268----------------- Dithod	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, excess salt.	Severe: wetness.	Fair: too clayey, too sandy, wetness.
269*:					
Dithod-------------	Severe: wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: too clayey, wetness.
Sagouspe-----------	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy.
Dia----------------	Severe: wetness, percs slowly, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
271----------------- East Fork	Severe: wetness, percs slowly.	Severe: flooding.	Severe: wetness.	Moderate: flooding, wetness.	Fair: too clayey, thin layer.
272----------------- East Fork	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Fair: too clayey, thin layer.
274----------------- East Fork	Severe: wetness, percs slowly.	Severe: flooding.	Severe: wetness.	Moderate: flooding, wetness.	Fair: too clayey, thin layer.
275----------------- East Fork	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, excess sodium, excess salt.	Severe: wetness.	Poor: excess salt, excess sodium.
276----------------- East Fork	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Moderate: wetness, flooding.	Fair: too clayey, thin layer.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
277----------------- East Fork	Severe: wetness, percs slowly.	Severe: flooding.	Severe: wetness.	Moderate: flooding, wetness.	Fair: too clayey, thin layer.
291, 292------------ Fallon	Severe: wetness.	Severe: seepage, flooding.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: too sandy.
293----------------- Fallon	Severe: flooding, wetness.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: too sandy.
294----------------- Fallon	Severe: wetness.	Severe: seepage, flooding.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: too sandy.
295----------------- Fallon	Severe: flooding, wetness.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: too sandy.
301, 302------------ Fernley	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
311----------------- Fulstone	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
312----------------- Fulstone	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
313*:					
Fulstone----------- (4 to 15 percent slopes)	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
Fulstone----------- (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: seepage, cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: area reclaim, seepage, small stones.
314*:					
Fulstone----------- (4 to 15 percent slopes)	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
Reno----------------	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, hard to pack.
Fulstone----------- (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: seepage, cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: area reclaim, seepage, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
315*:					
Pulstone	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
Stucky	Severe: percs slowly, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Poor: small stones, slope.
321 Haybourne	Severe: poor filter.	Severe: seepage, flooding.	Severe: too sandy.	Moderate: flooding.	Poor: too sandy.
331*:					
Hocar	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, seepage, small stones.
Rock outcrop.					
341 Holbrook	Moderate: flooding, slope.	Severe: seepage, flooding, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, small stones.
343*:					
Holbrook	Moderate: flooding, slope.	Severe: seepage, flooding, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, small stones.
Hotsprings	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Poor: small stones.
344*:					
Holbrook	Moderate: flooding.	Severe: seepage, flooding.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, small stones.
Shree	Severe: percs slowly.	Severe: seepage, flooding.	Severe: seepage.	Severe: seepage.	Poor: small stones.
345*:					
Holbrook Variant	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Rock outcrop.					
352, 353 Hotsprings	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Poor: small stones.
354*:					
Hotsprings	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Poor: small stones.
Holbrook	Moderate: flooding.	Severe: seepage, flooding.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
361----------------- Hough	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
371*:					
Hyloc---------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Ister---------------	Severe: depth to rock, percs slowly, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, large stones, slope.
372*:					
Hyloc---------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Ister---------------	Severe: depth to rock, percs slowly, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, large stones, slope.
Rock outcrop.					
391, 392------------ Juva	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, too sandy.	Severe: flooding.	Poor: too sandy.
401----------------- Lahontan	Severe: percs slowly, wetness.	Severe: flooding.	Severe: too clayey.	Moderate: flooding.	Poor: too clayey, hard to pack.
411----------------- Lapon	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Poor: area reclaim, slope.
412*:					
Lapon---------------	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Poor: area reclaim, slope.
Rubble land.					
Rock outcrop.					
413*:					
Lapon---------------	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Poor: area reclaim.
Pulstone------------	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
Old Camp------------	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, large stones, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
441 Lunder	Severe: cemented pan, percs slowly, large stones.	Severe: cemented pan, slope, large stones.	Severe: cemented pan, large stones.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
451 Obanion	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, excess sodium.	Severe: seepage, wetness.	Poor: wetness, excess sodium.
452 Obanion	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, excess sodium.	Severe: seepage, wetness.	Poor: excess sodium.
453 Obanion	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, excess sodium.	Severe: seepage, wetness.	Poor: wetness, excess sodium.
462*:					
Olac	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Rock outcrop.					
464*:					
Olac	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Rock outcrop.					
466*:					
Olac	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Ister	Severe: depth to rock, percs slowly, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, large stones, slope.
Rock outcrop.					
471*:					
Oppio	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Nosrac	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
481, 482 Orizaba	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, too sandy.	Severe: wetness.	Poor: too sandy, excess salt, excess sodium.
483 Orizaba	Severe: percs slowly.	Severe: flooding.	Severe: too sandy, excess sodium, excess salt.	Moderate: flooding.	Poor: too sandy, excess salt, excess sodium.
484 Orizaba	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, too sandy.	Severe: wetness.	Poor: too sandy, excess salt, excess sodium.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
486*:					
Orizaba	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, too sandy.	Severe: wetness.	Poor: too sandy, excess salt, excess sodium.
Delp	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
491 Otomo	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
501 Parran	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, excess salt.	Severe: wetness.	Poor: hard to pack.
511 Patna	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy.
512 Patna	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: seepage, too sandy, slope.
514, 516 Patna	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
517*:					
Patna	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
Hough	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Playas.					
518 Patna	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, too sandy.	Severe: flooding.	Poor: seepage, too sandy.
519 Patna	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
521 Pizene	Slight	Severe: seepage.	Slight	Slight	Good.
522*:					
Pizene	Slight	Severe: seepage.	Slight	Slight	Good.
Orizaba	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness, too sandy.	Severe: wetness.	Poor: too sandy, excess salt, excess sodium.
523, 524 Pizene	Slight	Severe: seepage.	Slight	Slight	Good.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
531, 532: Perazzo	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy, small stones.
534: Perazzo	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy, small stones.
535: Perazzo	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy, small stones.
541*:					
Uripnes	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Chill	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Rock outcrop.					
551: Rawe	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: seepage, small stones.
552*:					
Rawe (gravelly sandy loam)	Slight	Severe: seepage.	Slight	Slight	Poor: seepage, small stones.
Rawe (loamy sand)	Slight	Severe: seepage.	Slight	Slight	Poor: seepage, small stones.
553*:					
Rawe	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: seepage, small stones.
Malpais	Moderate: slope, large stones.	Severe: slope, seepage.	Severe: large stones.	Moderate: slope.	Poor: small stones.
561: Rebel	Slight	Severe: seepage.	Slight	Slight	Good.
571: Reno	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
572: Reno	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, hard to pack.
581: Risue	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, hard to pack.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
582----------------- Risue	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, hard to pack.
591----------------- Rose Creek	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: wetness.
601----------------- Rusty	Moderate: percs slowly.	Moderate: seepage.	Severe: too sandy.	Slight-----------	Poor: too sandy.
603*:					
Rusty--------------	Moderate: percs slowly.	Moderate: seepage.	Severe: too sandy.	Slight-----------	Poor: too sandy.
Isolde-------------	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
604*:					
Rusty--------------	Moderate: percs slowly.	Moderate: seepage.	Severe: too sandy.	Slight-----------	Poor: too sandy.
Playas.					
611----------------- Sagouspe	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy.
612----------------- Sagouspe	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, excess sodium.
613----------------- Sagouspe	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy.
621, 623, 625------- Saralegui	Severe: poor filter.	Severe: seepage.	Slight-----------	Slight-----------	Poor: thin layer.
626----------------- Saralegui	Severe: poor filter.	Severe: seepage.	Slight-----------	Slight-----------	Poor: thin layer.
627----------------- Saralegui Variant	Severe: percs slowly.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
631----------------- Singatse	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
632*:					
Singatse-----------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Rock outcrop.					

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
633*:					
Singatse	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Theon	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
641, 642, 643 Tocan	Slight	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
644*:					
Tocan	Slight	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
Yerington	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Fair: too sandy, small stones.
651 Theon	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
652*:					
Theon (30 to 50 percent slopes)	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Theon (50 to 75 percent slopes)	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Olac	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
653*:					
Theon	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Lapon	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Poor: area reclaim, slope.
Olac	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
654*:					
Theon	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Rock outcrop.					

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
654*:					
Old Camp	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, large stones, slope.
655*:					
Theon	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, small stones.
Yerington	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Fair: too sandy, small stones.
661 Isolde	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
662*:					
Isolde	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Patna	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy.
663 Isolde	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
671 Toulon	Severe: poor filter.	Severe: seepage.	Severe: too sandy, large stones.	Slight	Poor: seepage, too sandy, small stones.
681 Yerington Variant	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
691 Ultra	Severe: percs slowly.	Slight	Severe: excess salt.	Slight	Poor: hard to pack.
701 Veta	Moderate: large stones.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: seepage, small stones.
702 Veta	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding.	Severe: flooding.	Poor: seepage, small stones.
704 Veta	Moderate: slope, large stones.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: seepage, small stones.
711*:					
Vylach	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock.	Severe: depth to rock, cemented pan.	Poor: area reclaim.
Weena	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
721, 722, 723, 724 Wabuska	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness, too sandy, excess sodium.	Severe: wetness.	Poor: too sandy, excess sodium.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
725*:					
Wabuska	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness, too sandy, excess sodium.	Severe: wetness.	Poor: too sandy, excess sodium.
Delp	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
Playas.					
731 Hunewill	Severe: poor filter.	Severe: seepage.	Severe: too sandy, large stones.	Slight	Poor: seepage, too sandy, small stones.
732 Hunewill	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy, large stones.	Moderate: slope.	Poor: seepage, too sandy, small stones.
733 Hunewill	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy, large stones.	Severe: slope.	Poor: seepage, too sandy, small stones.
734 Hunewill	Severe: poor filter.	Severe: seepage.	Severe: too sandy, large stones.	Slight	Poor: seepage, too sandy, small stones.
735 Hunewill	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy, large stones.	Moderate: slope.	Poor: seepage, too sandy, small stones.
741*:					
Wedertz	Severe: percs slowly.	Slight	Slight	Slight	Good.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim.
Saralegui	Severe: poor filter.	Severe: seepage.	Slight	Slight	Poor: thin layer.
742*, 743*:					
Wedertz	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
Wellington	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim.
744*:					
Wedertz	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
Saralegui	Severe: poor filter.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: thin layer.
Wellington	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
746*:					
Wellsed	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, small stones.
Wedlar	Severe: percs slowly.	Severe: seepage.	Slight	Slight	Fair: small stones.
751 Malpais	Moderate: large stones.	Severe: seepage.	Severe: large stones.	Slight	Poor: small stones.
753 Malpais	Moderate: large stones.	Severe: seepage, large stones.	Severe: large stones.	Slight	Poor: small stones.
754*:					
Malpais (gravelly sandy loam)	Moderate: large stones.	Severe: seepage.	Severe: large stones.	Slight	Poor: small stones.
Malpais (stony sandy loam)	Moderate: slope, large stones.	Severe: seepage, slope, large stones.	Severe: large stones.	Moderate: slope.	Poor: small stones.
755*:					
Malpais	Moderate: large stones.	Severe: seepage.	Severe: large stones.	Slight	Poor: small stones.
Yerington	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Fair: too sandy, small stones.
761, 762, 763 Yerington	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Fair: too sandy, small stones.
764 Yerington	Severe: poor filter.	Severe: seepage, slope.	Moderate: slope, too sandy.	Moderate: slope.	Fair: too sandy, small stones, slope.
765, 766, 767 Yerington	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Fair: too sandy, small stones.
771*:					
Biddleman (gravelly sandy loam)	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy, small stones.
Biddleman (very stony sandy loam)	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy, small stones.
781 Celeton	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, hard to pack, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
782*:					
Weena	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Malpais	Moderate: slope, large stones.	Severe: seepage, slope, large stones.	Severe: large stones.	Moderate: slope.	Poor: small stones.
791*:					
Flex	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Duco	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
792*:					
Pirouette	Severe: depth to rock, cemented pan.	Severe: seepage, depth to rock, cemented pan.	Severe: depth to rock, large stones.	Severe: depth to rock, cemented pan.	Poor: area reclaim, small stones.
Osobb	Severe: depth to rock, cemented pan, slope.	Severe: seepage, depth to rock, cemented pan.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, cemented pan, slope.	Poor: area reclaim, seepage, small stones.
Rock outcrop.					
793 Pirouette	Severe: depth to rock, cemented pan, slope.	Severe: seepage, depth to rock, cemented pan.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, cemented pan, slope.	Poor: area reclaim, small stones, slope.
802*:					
Loomer	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, small stones.
Zephan	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, hard to pack, large stones.
Olac	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
803*:					
Loomer (15 to 30 percent slopes)	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, small stones.
Loomer (30 to 50 percent slopes)	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
811*:					
Trid (30 to 50 percent slopes)	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Trid (4 to 15 percent slopes)	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, small stones.
Drit	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
812*:					
Trid	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Roloc	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Drit	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
821*. Badland					
822*. Dumps					
823*. Gypsum land					
824*, 825*. Pits					
826*. Playas					
827*. Slickens					
831*:					
Ister	Severe: depth to rock, percs slowly, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, large stones, slope.
Hyloc	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Lunder	Severe: cemented pan, percs slowly, large stones.	Severe: cemented pan, slope, large stones.	Severe: cemented pan, large stones.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
841*:					
Bradshaw	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: large stones, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
841*:					
Hartig	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
851*:					
Tenpin	Severe: percs slowly.	Moderate: seepage, slope, large stones.	Severe: large stones.	Slight	Poor: small stones.
Shree	Severe: percs slowly.	Severe: seepage, flooding.	Severe: seepage.	Severe: seepage.	Poor: small stones.
861 Shree	Severe: percs slowly.	Severe: seepage, flooding.	Severe: seepage.	Severe: seepage.	Poor: small stones.
871*:					
Nall	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock.	Poor: area reclaim.
Luppino	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Hotsprings	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Poor: small stones.
881*:					
Ravenell Variant	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: area reclaim, too clayey, hard to pack.
Devils Variant	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
891*, 892*:					
Berit	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Shoken	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
893*:					
Berit	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Saralegui	Severe: poor filter.	Severe: seepage.	Slight	Slight	Poor: thin layer.
911*:					
Fulstone Variant	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: area reclaim, too clayey, hard to pack.
Devils	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
911*:					
Glean	Moderate: depth to rock, slope, large stones.	Severe: seepage, slope.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: small stones.
921*:					
Glean	Moderate: depth to rock, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: small stones.
Devils	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, small stones.
922*:					
Glean	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
Devils	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Rock outcrop.					
923*:					
Glean	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
Ticino	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Hartig	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
932*:					
Shoken	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Rock outcrop.					
951*:					
Koontz	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, small stones.
Ravenell	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Haar	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
961 Luppino	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
971*:					
Minneha	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Drit	Severe: slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
Rock outcrop.					
972*:					
Minneha	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Berit	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Wile	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, small stones.
981 Ravenell	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
982*:					
Ravenell	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Haar	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Rock outcrop.					
991*:					
Roloc	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Drit	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
1001 Rowel	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
1002*:					
Rowel	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Rock outcrop.					

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1011, 1012----------- Smedley	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
1013*:					
Smedley------------ (2 to 4 percent slopes)	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
Smedley------------ (4 to 15 percent slopes)	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
1014*:					
Smedley------------ (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: seepage, cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: area reclaim, seepage, small stones.
Smedley------------ (4 to 15 percent slopes)	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: area reclaim, seepage, small stones.
1021---------------- Springmeyer	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too sandy.	Slight-----------	Fair: too sandy, small stones.
1031*:					
Burnborough--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Glean--------------	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
1041*:					
Whichman-----------	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: seepage, large stones, slope.
Ister--------------	Severe: depth to rock, percs slowly, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, large stones, slope.
Rock outcrop.					
1051---------------- Zyzzi	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
1072---------------- Hawsley	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----------	Poor: seepage, too sandy.
1073*:					
Hawsley------------	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1073*:					
Gamgee	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
1074 Hawsley	Severe: percs slowly, poor filter.	Severe: seepage.	Severe: too sandy, excess salt.	Slight	Poor: seepage, too sandy.
1075*:					
Hawsley	Severe: percs slowly, poor filter.	Severe: seepage.	Severe: too sandy, excess salt.	Slight	Poor: seepage, too sandy.
Playas.					
1081 Stucky	Severe: percs slowly, large stones.	Severe: slope, large stones.	Severe: large stones.	Moderate: slope.	Poor: small stones.
1082*:					
Stucky (8 to 15 percent slopes)	Severe: percs slowly, large stones.	Severe: slope, large stones.	Severe: large stones.	Moderate: slope.	Poor: small stones.
Stucky (15 to 30 percent slopes)	Severe: percs slowly, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Poor: small stones, slope.
1083*:					
Stucky	Severe: percs slowly, large stones.	Severe: large stones.	Severe: large stones.	Slight	Poor: small stones.
Hunewill	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy, large stones.	Severe: slope.	Poor: seepage, too sandy, small stones.
Veta	Moderate: large stones.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: seepage, small stones.
1091*:					
Glean Variant	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, seepage, too sandy.
Hartig Variant	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Rubble land.					
1103*:					
Mirkwood	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Nemico	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock.	Severe: depth to rock, cemented pan.	Poor: area reclaim.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1110*:					
Surgem	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, hard to pack, large stones.
Olac	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Cagle	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
1121*:					
Duco	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Nosrac	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
1131 Gamgee	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
1141*:					
Old Camp	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, large stones, slope.
Mirkwood	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Nemico	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, slope.	Severe: depth to rock, cemented pan, slope.	Poor: area reclaim, slope.
1142*:					
Old Camp	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, large stones, slope.
Holbrook Variant	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
1143*:					
Old Camp	Severe: depth to rock, large stones, percs slowly.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, large stones.	Severe: depth to rock.	Poor: area reclaim, large stones.
Reno Variant	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, slope.	Severe: depth to rock, cemented pan, seepage.	Poor: area reclaim, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1143*:					
Hyloc	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
101: Ackley	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
102: Ackley	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
103*:				
Ackley	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Ackley Variant	Fair: thin layer, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, excess salt.
121, 122: Appian	Good	Probable	Improbable: too sandy.	Poor: excess sodium.
123*:				
Appian	Good	Probable	Improbable: too sandy.	Poor: excess sodium.
Wabuska	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
124*:				
Appian	Good	Probable	Improbable: too sandy.	Poor: excess sodium.
Delp	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
141, 142: Bango	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
151: Bluewing Variant	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
161: Bluewing	Good	Probable	Probable	Poor: too sandy, small stones, area reclaim.
162: Bluewing	Fair: large stones.	Probable	Probable	Poor: small stones, area reclaim.
171*:				
Cagle	Poor: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Nosrac	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
181, 182, 184, 185: Charlebois	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
191*:				
Chill (8 to 15 percent slopes)	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Chill (15 to 30 percent slopes)	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
201, 202, 204, 205 Cleaver	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
207 Cleaver	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
208*:				
Cleaver (2 to 4 percent slopes)	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Cleaver (4 to 15 percent slopes)	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
209*:				
Cleaver (15 to 30 percent slopes)	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Cleaver (4 to 15 percent slopes)	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
221 Dalzell	Good	Probable	Improbable: too sandy.	Poor: too sandy, excess salt.
223 Dalzell	Good	Probable	Improbable: too sandy.	Poor: excess salt.
231*:				
Delp	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, slope.
Lox	Good	Probable	Probable	Poor: small stones, area reclaim, excess sodium.
232*:				
Delp	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Orizaba	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
233 Delp	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
241*:				
Devada	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Rock outcrop.				
242*:				
Devada	Poor: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
251 Dia	Good	Probable	Improbable: too sandy.	Fair: small stones, thin layer.
252 Dia	Good	Probable	Improbable: too sandy.	Fair: too clayey, small stones, thin layer.
253 Dia	Fair: wetness.	Probable	Improbable: too sandy.	Poor: thin layer.
254*:				
Dia	Fair: wetness.	Probable	Improbable: too sandy.	Poor: thin layer.
Dithod (clay loam, wet)	Fair: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
Dithod (loam, saline-alkali)	Fair: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
255*:				
Dia	Fair: wetness.	Probable	Improbable: too sandy.	Fair: small stones, thin layer.
Dithod	Fair: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
256*:				
Dia	Good	Probable	Improbable: too sandy.	Fair: small stones, thin layer.
Sagouspe (sandy loam)	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Sagouspe (loamy sand)	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
261 Dithod	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
262 Dithod	Fair: low strength, thin layer, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Good.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
263, 264 Dithod	Fair: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
265 Dithod	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
268 Dithod	Fair: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
269*:				
Dithod	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Sagouspe	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Dia	Good	Probable	Improbable: too sandy.	Fair: small stones, thin layer.
271, 272 East Fork	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
274 East Fork	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
275 East Fork	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
276, 277 East Fork	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
291 Fallon	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
292 Fallon	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, excess salt.
293 Fallon	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
294 Fallon	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
295 Fallon	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
301 Fernley	Fair: wetness.	Probable	Improbable: too sandy.	Fair: too sandy, small stones.
302 Fernley	Good	Probable	Improbable: too sandy.	Fair: too sandy, small stones.
311, 312 Fulstone	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
313*:				
Fulstone (4 to 15 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
313*:				
Pulstone (15 to 30 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones, slope.
314*:				
Pulstone (4 to 15 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
Reno	Poor: area reclaim.	Probable	Probable	Poor: small stones, area reclaim.
Pulstone (15 to 30 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones, slope.
315*:				
Pulstone	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
Stucky	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, area reclaim, slope.
321 Haybourne	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
331*:				
Hocar	Poor: area reclaim.	Improbable: small stones.	Improbable: thin layer.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
341 Holbrook	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
343*:				
Holbrook	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Hotsprings	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
344*:				
Holbrook	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Shree	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
345*:				
Holbrook Variant	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
345*: Rock outcrop.				
352, 353 Hotsprings	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
354*: Hotsprings	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Holbrook	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
361 Hough	Good	Probable	Improbable: too sandy.	Poor: too sandy.
371*: Hyloc	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Ister	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
372*: Hyloc	Poor: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Ister	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
391, 392 Juva	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
401 Lahontan	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
411 Lapon	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
412*: Lapon	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rubble land.				
Rock outcrop.				
413*: Lapon	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
413*:				
Fulstone	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
Old Camp	Poor: area reclaim, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
441 Lunder	Poor: area reclaim, large stones.	Improbable: large stones.	Improbable: large stones.	Poor: area reclaim, large stones.
451 Obanion	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness, excess sodium.
452 Obanion	Fair: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
453 Obanion	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness, excess sodium.
462*:				
Olac	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Rock outcrop.				
464*:				
Olac	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
466*:				
Olac	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Iater	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
471*:				
Oppio	Poor: area reclaim, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Nosrac	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
481, 482: Orizaba	Fair: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
483: Orizaba	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
484: Orizaba	Fair: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
486*:				
Orizaba	Fair: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
Delp	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
491: Otomo	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
501: Parran	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
511: Patna	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
512: Patna	Fair: slope.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
514: Patna	Fair: thin layer.	Improbable: thin layer.	Improbable: too sandy.	Fair: too sandy.
516: Patna	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
517*:				
Patna	Good	Improbable: thin layer.	Improbable: too sandy.	Fair: too sandy.
Hough	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Playas.				
518: Patna	Good	Probable	Improbable: too sandy.	Fair: small stones, area reclaim, thin layer.
519: Patna	Good	Improbable: thin layer.	Improbable: too sandy.	Good.
521: Pizene	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
522*:				
Pizene	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.

* See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
522*:				
Orizaba	Fair: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
523, 524 Pizene	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
531, 532, 534, 535 Perazzo	Good	Improbable: small stones.	Probable	Poor: small stones, area reclaim.
541*:				
Uripnes	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Chill	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Rock outcrop.				
551 Rawe	Good	Probable	Probable	Poor: small stones, area reclaim.
552*:				
Rawe (gravelly sandy loam)	Good	Probable	Probable	Poor: small stones, area reclaim.
Rawe (loamy sand)	Good	Probable	Probable	Poor: small stones, area reclaim.
553*:				
Rawe	Good	Probable	Probable	Poor: small stones, area reclaim.
Malpais	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
561 Rebel	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
571, 572 Reno	Poor: area reclaim.	Probable	Probable	Poor: small stones, area reclaim.
581, 582 Risue	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
591 Rose Creek	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
601 Rusty	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, excess sodium.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
603*:				
Rusty	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, excess sodium.
Isolde	Good	Probable	Improbable: too sandy.	Poor: too sandy.
604*:				
Rusty	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, excess sodium.
Playas.				
611 Sagouspe	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
612 Sagouspe	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
613 Sagouspe	Fair: wetness.	Probable	Improbable: too sandy.	Poor: thin layer.
621 Saralegui	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, small stones.
623, 625 Saralegui	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
626 Saralegui	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
627 Saralegui Variant	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones, thin layer.
631 Singatse	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
632*:				
Singatse	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
633*:				
Singatse	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Theon	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
641, 642, 643 Tocan	Good	Probable	Probable	Poor: small stones.
644*:				
Tocan	Good	Probable	Probable	Poor: small stones.
Yerington	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
651 Theon	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
652*:				
Theon (30 to 50 percent slopes)	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Theon (50 to 75 percent slopes)	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Olac	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
653*:				
Theon	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Lapon	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Olac	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
654*:				
Theon	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
Old Camp	Poor: area reclaim, large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
655*:				
Theon	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Yerington	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
661 Isolde	Good	Probable	Improbable: too sandy.	Poor: too sandy.
662*:				
Isolde	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Patna	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
663 Isolde	Good	Probable	Improbable: too sandy.	Poor: too sandy.
671 Toulon	Fair: large stones.	Probable	Probable	Poor: small stones, area reclaim.
681 Yerington Variant	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
691 Ultra	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
701, 702, 704 Veta	Fair: large stones.	Probable	Probable	Poor: small stones, area reclaim.
711*:				
Vylach	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Weena	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
721, 722 Wabuska	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
723, 724 Wabuska	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
725*:				
Wabuska	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
Delp	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Playas.				
731, 732 Hunewill	Fair: large stones.	Probable	Probable	Poor: small stones, area reclaim, excess salt.
733 Hunewill	Fair: large stones, slope.	Probable	Probable	Poor: small stones, area reclaim, excess salt.
734, 735 Hunewill	Fair: large stones.	Probable	Probable	Poor: small stones, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
741*:				
Wedertz	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Wellington	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Saralegui	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
742*, 743*:				
Wedertz	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Wellington	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
744*:				
Wedertz	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
Saralegui	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Wellington	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
746*:				
Welsed	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, small stones.
Wedlar	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
751, 753 Malpais	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
754*:				
Malpais (gravelly sandy loam)	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Malpais (stony sandy loam)	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
755*:				
Malpais	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Yerington	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
761, 762, 763 Yerington	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
764 Yerington	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
765, 766, 767: Yerington	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
771*:				
Biddleman (gravelly sandy loam)	Good	Improbable: small stones.	Probable	Poor: small stones, area reclaim, excess sodium.
Biddleman (very stony sandy loam)	Good	Improbable: small stones.	Probable	Poor: small stones, area reclaim, excess sodium.
781: Celeton	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
782*:				
Weena	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Malpais	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
791*:				
Flex	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Duco	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
792*:				
Pirouette	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Osobb	Poor: area reclaim, large stones.	Improbable: large stones.	Improbable: large stones.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
793: Pirouette	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
802*:				
Loomer	Poor: area reclaim, large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
Zephan	Poor: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
802*:				
Clac	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
803*:				
Loomer (15 to 30 percent slopes)	Poor: area reclaim, large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
Loomer (30 to 50 percent slopes)	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
811*:				
Trid (30 to 50 percent slopes)	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Trid (4 to 15 percent slopes)	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, small stones.
Drit	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
812*:				
Trid	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Roloc	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Drit	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
821*. Badland				
822*. Dumps				
823*. Gypsum land				
824*, 825*. Pits				
826*. Playas				
827*. Slickens				
831*:				
Ister	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
831*:				
Hyloc	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Lunder	Poor: area reclaim, large stones.	Improbable: large stones.	Improbable: large stones.	Poor: area reclaim, large stones.
841*:				
Bradshaw	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
Hartig	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
851*:				
Tenpin	Fair: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, area reclaim.
Shree	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
861 Shree	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
871*:				
Nall	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Luppino	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Hotsprings	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
881*:				
Ravenell Variant	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Devils Variant	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
891*:				
Berit	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Shoken	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
892*:				
Berit	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Shoken	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
893*:				
Berit	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Saralegui	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
911*:				
Fulstone Variant	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Devils	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Glean	Fair: area reclaim, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
921*:				
Glean	Fair: area reclaim, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Devils	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
922*:				
Glean	Fair: area reclaim, thin layer, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Devils	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
923*:				
Glean	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Ticino	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hartig	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
932*:				
Shoken	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
951*:				
Koontz	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Ravenell	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Haar	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
961 Luppino	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
971*:				
Minneha	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Drit	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rock outcrop.				
972*:				
Minneha	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Berit	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Wile	Poor: area reclaim, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
981 Ravenell	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
982*:				
Ravenell	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Haar	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
982*: Rock outcrop.				
991*: Roloc	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Drit	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
1001 Rowel	Poor: area reclaim, large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
1002*: Rowel	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
1011, 1012 Smedley	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
1013*: Smedley (2 to 4 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
Smedley (4 to 15 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
1014*: Smedley (15 to 30 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones, slope.
Smedley (4 to 15 percent slopes)	Poor: area reclaim.	Probable	Probable	Poor: area reclaim, small stones.
1021 Springmeyer	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
1031*: Burnborough	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Glean	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1041*:				
Whichman	Poor: large stones, slope.	Improbable: large stones.	Improbable: large stones.	Poor: large stones, area reclaim, slope.
Iser	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
1051 Zyzzi	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
1072 Hawsley	Good	Probable	Improbable: too sandy.	Poor: too sandy.
1073*:				
Hawsley	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Gamgee	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, excess sodium.
1074 Hawsley	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: thin layer.
1075*:				
Hawsley	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: thin layer.
Playas.				
1081 Stucky	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, area reclaim.
1082*:				
Stucky (8 to 15 percent slopes)	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, area reclaim.
Stucky (15 to 30 percent slopes)	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, area reclaim, slope.
1083*:				
Stucky	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, area reclaim.
Hunewill	Fair: large stones, slope.	Probable	Probable	Poor: small stones, area reclaim, excess salt.
Veta	Fair: large stones.	Probable	Probable	Poor: small stones, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1091*:				
Glean Variant	Poor: area reclaim, slope.	Improbable: thin layer.	Improbable: too sandy.	Poor: small stones, slope.
Hartig Variant	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, too sandy, small stones.
Rubble land.				
1103*:				
Mirkwood	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Nemico	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
1110*:				
Surgem	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, slope.
Olac	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Cagle	Poor: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
1121*:				
Duco	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
Nosrac	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
1131 Gamgee	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, small stones, excess sodium.
1141*:				
Old Camp	Poor: area reclaim, large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
Mirkwood	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Nemico	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1142*:				
Old Camp-------------	Poor: area reclaim, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
Holbrook Variant-----	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
1143*:				
Old Camp-------------	Poor: area reclaim, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones.
Reno Variant---------	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
Hyloc----------------	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions
101 Ackley	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing	Erodes easily, soil blowing.
102 Ackley	Severe: seepage.	Severe: piping.	Deep to water	Slope	Erodes easily.
103*:					
Ackley	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing	Erodes easily, soil blowing.
Ackley Variant	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing, excess salt.	Erodes easily, soil blowing.
121 Appian	Severe: seepage.	Severe: seepage, excess sodium.	Deep to water	Droughty, fast intake, excess sodium.	Too sandy.
122 Appian	Severe: seepage.	Severe: seepage, excess sodium.	Deep to water	Droughty, excess sodium.	Erodes easily, too sandy.
123*:					
Appian	Severe: seepage.	Severe: seepage, excess sodium.	Deep to water	Droughty, fast intake, excess sodium.	Too sandy.
Wabuska	Moderate: seepage.	Severe: piping, excess sodium.	Frost action, cutbanks cave, excess sodium.	Wetness	Erodes easily, wetness, too sandy.
124*:					
Appian	Severe: seepage.	Severe: seepage, excess sodium.	Deep to water	Droughty, fast intake, excess sodium.	Too sandy.
Delp	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy.
141 Bango	Slight	Severe: excess sodium.	Deep to water	Excess sodium	Erodes easily, soil blowing.
142 Bango	Slight	Severe: excess sodium.	Deep to water	Fast intake, excess sodium.	Erodes easily.
151 Bluewing Variant	Moderate: slope.	Moderate: hard to pack.	Deep to water	Slow intake, percs slowly, slope.	Percs slowly.
161 Bluewing	Severe: seepage.	Severe: seepage.	Deep to water	----------	Large stones, too sandy.
162 Bluewing	Severe: seepage.	Severe: seepage.	Deep to water	Large stones, droughty, fast intake.	Large stones, too sandy.
171*:					
Cagle	Severe: slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, depth to rock.
Nosrac	Severe: slope.	Moderate: large stones.	Deep to water	Slope	Slope, large stones.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
181----------- Charlebois	Moderate: seepage.	Severe: piping.	Deep to water----	Favorable--------	Favorable.
182----------- Charlebois	Moderate: seepage, slope.	Severe: piping.	Deep to water----	Slope------------	Favorable.
184----------- Charlebois	Moderate: seepage.	Severe: piping.	Deep to water----	Favorable--------	Favorable.
185----------- Charlebois	Moderate: seepage.	Severe: piping.	Deep to water----	Soil blowing-----	Soil blowing.
191*:					
Chill----------- (8 to 15 percent slopes)	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water----	Droughty, depth to rock.	Slope, depth to rock.
Chill----------- (15 to 30 percent slopes)	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water----	Droughty, depth to rock.	Slope, depth to rock.
201----------- Cleaver	Severe: cemented pan.	Severe: thin layer.	Deep to water----	Fast intake, soil blowing, percs slowly.	Cemented pan, soil blowing.
202----------- Cleaver	Severe: cemented pan.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Cemented pan, percs slowly.
204----------- Cleaver	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
206----------- Cleaver	Severe: cemented pan.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Cemented pan, percs slowly.
207----------- Cleaver	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
208*:					
Cleaver---------- (2 to 4 percent slopes)	Severe: cemented pan.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Cemented pan, percs slowly.
Cleaver---------- (4 to 15 percent slopes)	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
209*:					
Cleaver---------- (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
Cleaver---------- (4 to 15 percent slopes)	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water----	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
221----------- Dalzell	Severe: seepage.	Severe: seepage, piping.	Deep to water----	Fast intake, soil blowing, cemented pan.	Cemented pan.
223----------- Dalzell	Severe: seepage.	Severe: seepage, piping.	Deep to water----	Cemented pan-----	Cemented pan, erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
231*:					
Delp	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy.
Lox	Severe: seepage.	Severe: seepage, excess sodium.	Deep to water	Droughty, percs slowly, slope.	Favorable.
232*:					
Delp	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy.
Orizaba	Slight	Severe: excess sodium, excess salt.	Deep to water	Erodes easily, excess sodium, excess salt.	Erodes easily, too sandy.
233 Delp	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy.
241*:					
Devada	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, large stones, depth to rock.
Rock outcrop.					
242*:					
Devada	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, large stones, depth to rock.
Rock outcrop.					
251 Dia	Severe: seepage.	Severe: seepage, piping.	Deep to water	Erodes easily	Erodes easily, too sandy.
252 Dia	Severe: seepage.	Severe: seepage, piping.	Deep to water	Favorable	Too sandy.
253 Dia	Severe: seepage.	Severe: seepage, piping, wetness.	Frost action, cutbanks cave.	Wetness, droughty.	Wetness, too sandy.
254*:					
Dia	Severe: seepage.	Severe: seepage, piping, wetness.	Frost action, cutbanks cave.	Wetness, droughty.	Wetness, too sandy.
Dithod (clay loam, wet)	Slight	Severe: piping, wetness, excess salt.	Cutbanks cave, excess salt.	Wetness, excess salt.	Wetness.
Dithod (loam, saline-alkali)	Slight	Severe: piping, wetness, excess salt.	Cutbanks cave, excess salt.	Wetness, excess salt.	Wetness.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
255*:					
Dia	Severe: seepage.	Severe: seepage, piping.	Flooding, frost action, cutbanks cave.	Wetness, erodes easily, flooding.	Erodes easily, wetness, too sandy.
Dithod	Moderate: seepage.	Severe: piping.	Flooding, frost action, cutbanks cave.	Wetness, flooding.	Erodes easily, wetness.
256*:					
Dia	Severe: seepage.	Severe: seepage, piping.	Deep to water	Erodes easily	Erodes easily, too sandy.
Sagouspe (sandy loam)	Severe: seepage.	Severe: seepage, piping.	Deep to water	Soil blowing	Too sandy, soil blowing.
Sagouspe (loamy sand)	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
261 Dithod	Moderate: seepage.	Severe: piping.	Deep to water	Favorable	Favorable.
262 Dithod	Moderate: seepage.	Moderate: piping, wetness.	Deep to water	Erodes easily	Erodes easily.
263, 264 Dithod	Slight	Severe: piping, wetness, excess salt.	Cutbanks cave, excess salt.	Wetness, excess salt.	Wetness.
265 Dithod	Moderate: seepage.	Severe: piping.	Deep to water	Favorable	Favorable.
268 Dithod	Slight	Severe: piping, wetness, excess salt.	Cutbanks cave, excess salt.	Wetness, excess salt.	Wetness.
269*:					
Dithod	Moderate: seepage.	Severe: piping.	Deep to water	Favorable	Favorable.
Sagouspe	Severe: seepage.	Severe: seepage, piping.	Deep to water	Soil blowing	Too sandy, soil blowing.
Dia	Severe: seepage.	Severe: seepage, piping.	Deep to water	Erodes easily	Erodes easily, too sandy.
271 East Fork	Slight	Moderate: wetness.	Deep to water	Erodes easily	Erodes easily.
272 East Fork	Slight	Moderate: wetness.	Deep to water	Flooding, excess salt.	Favorable.
274 East Fork	Slight	Moderate: wetness.	Deep to water	Favorable	Favorable.
275 East Fork	Slight	Severe: excess sodium, excess salt.	Deep to water	Excess sodium, excess salt.	Favorable.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
276---------------East Fork	Slight------------	Moderate: wetness.	Frost action-----	Percs slowly.	Erodes easily.
277---------------East Fork	Slight------------	Moderate: wetness.	Deep to water----	Favorable--------	Favorable.
291---------------Fallon	Severe: seepage.	Severe: piping.	Deep to water----	Droughty, excess salt.	Too sandy.
292---------------Fallon	Severe: seepage.	Severe: piping.	Deep to water----	Droughty, excess salt.	Erodes easily, too sandy.
293---------------Fallon	Severe: seepage.	Severe: piping.	Deep to water----	Droughty, soil blowing, erodes easily.	Erodes easily, too sandy, soil blowing.
294---------------Fallon	Severe: seepage.	Severe: piping.	Deep to water----	Soil blowing, erodes easily, excess salt.	Erodes easily, too sandy, soil blowing.
295---------------Fallon	Severe: seepage.	Severe: piping.	Deep to water----	Droughty, soil blowing, erodes easily.	Erodes easily, too sandy, soil blowing.
301---------------Fernley	Severe: seepage.	Severe: seepage, piping.	Cutbanks cave----	Wetness, droughty, fast intake.	Wetness, too sandy.
302---------------Fernley	Severe: seepage.	Severe: seepage, piping.	Deep to water----	Droughty, fast intake, soil blowing.	Too sandy.
311---------------Fulstone	Severe: seepage, cemented pan.	Severe: seepage.	Deep to water----	Droughty, percs slowly.	Large stones, cemented pan.
312---------------Fulstone	Severe: seepage, cemented pan, slope.	Severe: seepage.	Deep to water----	Droughty, percs slowly.	Slope, large stones, cemented pan.
313*:					
Fulstone---------(4 to 15 percent slopes)	Severe: seepage, cemented pan, slope.	Severe: seepage.	Deep to water----	Large stones, droughty, percs slowly.	Slope, large stones, cemented pan.
Fulstone---------(15 to 30 percent slopes)	Severe: seepage, cemented pan, slope.	Severe: seepage.	Deep to water----	Large stones, droughty, percs slowly.	Slope, large stones, cemented pan.
314*:					
Fulstone---------(4 to 15 percent slopes)	Severe: seepage, cemented pan, slope.	Severe: seepage.	Deep to water----	Droughty, percs slowly.	Slope, large stones, cemented pan.
Reno--------------	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water----	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
Fulstone---------(15 to 30 percent slopes)	Severe: seepage, cemented pan, slope.	Severe: seepage.	Deep to water----	Droughty, percs slowly.	Slope, large stones, cemented pan.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
315*:					
Pulstone	Severe: seepage, cemented pan.	Severe: seepage.	Deep to water	Droughty, percs slowly.	Large stones, cemented pan.
Stucky	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
321 Haybourne	Severe: seepage.	Severe: seepage.	Deep to water	Droughty	Erodes easily, too sandy.
331*:					
Hocar	Severe: depth to rock, slope.	Severe: seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.
Rock outcrop.					
341 Holbrook	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, soil blowing.	Slope, large stones, too sandy.
343*:					
Holbrook	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, soil blowing.	Slope, large stones, too sandy.
Hotsprings	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake.	Too sandy.
344*:					
Holbrook	Severe: seepage.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, soil blowing.	Large stones, too sandy.
Shree	Severe: seepage.	Moderate: large stones.	Deep to water	Droughty, slope.	Large stones.
345*:					
Holbrook Variant	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
352 Hotsprings	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
353 Hotsprings	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake.	Too sandy.
354*:					
Hotsprings	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake.	Too sandy.
Holbrook	Severe: seepage.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, fast intake.	Large stones, too sandy.
361 Hough	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
371*:					
Hyloc	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Ister	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
372*:					
Hyloc	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Ister	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
391 Juva	Severe: seepage.	Severe: piping.	Deep to water	Droughty	Too sandy.
392 Juva	Severe: seepage.	Severe: piping.	Deep to water	Droughty, slope.	Too sandy.
401 Lahontan	Slight	Moderate: hard to pack.	Deep to water	Percs slowly, erodes easily, excess salt.	Erodes easily, percs slowly.
411 Lapon	Severe: depth to rock, cemented pan, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
412*:					
Lapon	Severe: depth to rock, cemented pan, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Rubble land.					
Rock outcrop.					
413*:					
Lapon	Severe: depth to rock, cemented pan, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Fulstone	Severe: seepage, cemented pan.	Severe: seepage.	Deep to water	Droughty, percs slowly.	Large stones, cemented pan.
Old Camp	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
441 Lunder	Severe: cemented pan, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, cemented pan.
451 Obanion	Slight	Severe: wetness, excess sodium.	Frost action, excess salt, excess sodium.	Wetness, fast intake, soil blowing.	Wetness, soil blowing.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
452 Obanion	Slight	Severe: excess sodium.	Frost action, excess sodium.	Wetness, soil blowing, excess sodium.	Wetness, soil blowing.
453 Obanion	Slight	Severe: wetness, excess sodium.	Frost action, excess salt, excess sodium.	Wetness	Wetness.
462*, 464*:					
Olac	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
466*:					
Olac	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Ister	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
471*:					
Oppio	Severe: slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, depth to rock.
Nouque	Severe: slope.	Moderate: large stones.	Deep to water	Slope	Slope, large stones.
481 Orizaba	Slight	Severe: excess sodium, excess salt.	Frost action	Wetness, soil blowing, erodes easily.	Erodes easily, wetness, too sandy.
482 Orizaba	Slight	Severe: excess sodium, excess salt.	Frost action	Wetness, erodes easily.	Erodes easily, wetness, too sandy.
483 Orizaba	Slight	Severe: excess sodium, excess salt.	Deep to water	Erodes easily, excess sodium, excess salt.	Erodes easily, too sandy.
484 Orizaba	Slight	Severe: excess sodium, excess salt.	Percs slowly, frost action.	Wetness, erodes easily.	Erodes easily, wetness, too sandy.
486*:					
Orizaba	Slight	Severe: excess sodium, excess salt.	Frost action	Wetness, erodes easily.	Erodes easily, wetness, too sandy.
Delp	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy.
491 Otomo	Severe: seepage, cemented pan, slope.	Severe: seepage.	Deep to water	Droughty, cemented pan, slope.	Slope, cemented pan.
501 Parran	Slight	Severe: excess salt.	Percs slowly, frost action, excess salt.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions
511, 512 Patna	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Slope, too sandy.
514 Patna	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
516 Patna	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy.
517*:					
Patna	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy.
Hough	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
Playas.					
518 Patna	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, soil blowing, flooding.	Too sandy, soil blowing.
519 Patna	Severe: seepage.	Severe: seepage, piping.	Deep to water	Favorable	Erodes easily, too sandy.
521 Pizene	Severe: seepage.	Severe: piping, excess sodium.	Deep to water	Excess sodium	Favorable.
522*:					
Pizene	Severe: seepage.	Severe: piping, excess sodium.	Deep to water	Excess sodium	Favorable.
Orizaba	Slight	Severe: excess sodium, excess salt.	Percs slowly, frost action.	Wetness, erodes easily.	Erodes easily, wetness, too sandy.
523 Pizene	Severe: seepage.	Severe: piping, excess sodium.	Deep to water	Excess sodium	Erodes easily.
524 Pizene	Severe: seepage.	Severe: piping, excess sodium.	Deep to water	Fast intake, excess sodium.	Favorable.
531 Perazzo	Severe: seepage.	Severe: seepage.	Deep to water	Droughty	Too sandy.
532 Perazzo	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, slope.	Too sandy.
534 Perazzo	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, too sandy.
535 Perazzo	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, slope.	Too sandy.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
541*:					
Uripnes	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.
Chill	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
Rock outcrop.					
551 Rawe	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty	Slope, erodes easily.
552*:					
Rawe (gravelly sandy loam)	Severe: seepage.	Severe: seepage.	Deep to water	Droughty	Erodes easily.
Rawe (loamy sand)	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Favorable.
553*:					
Rawe	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty	Slope, erodes easily.
Malpais	Severe: slope, seepage.	Severe: large stones.	Deep to water	Large stones, droughty.	Slope, large stones.
561 Rebel	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing	Soil blowing.
571 Reno	Severe: seepage.	Severe: seepage.	Deep to water	Percs slowly, cemented pan, slope.	Cemented pan, too sandy.
572 Reno	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
581 Risue	Severe: cemented pan, slope.	Moderate: hard to pack.	Deep to water	Percs slowly, cemented pan, slope.	Slope, cemented pan, percs slowly.
582 Risue	Severe: cemented pan.	Moderate: hard to pack.	Deep to water	Percs slowly, cemented pan, slope.	Cemented pan, percs slowly.
591 Rose Creek	Severe: seepage.	Severe: piping, wetness.	Flooding, frost action, cutbanks cave.	Wetness, erodes easily, flooding.	Erodes easily, wetness, too sandy.
601 Rusty	Moderate: seepage.	Severe: piping, excess sodium.	Deep to water	Fast intake, soil blowing.	Erodes easily, too sandy, soil blowing.
603*:					
Rusty	Moderate: seepage.	Severe: piping, excess sodium.	Deep to water	Fast intake, soil blowing.	Erodes easily, too sandy, soil blowing.
Isolde	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
604*: Rusty	Moderate: seepage.	Severe: piping, excess sodium.	Deep to water	Fast intake, soil blowing.	Erodes easily, too sandy, soil blowing.
Playas.					
611 Sagouspe	Severe: seepage.	Severe: seepage, piping.	Deep to water	Soil blowing	Too sandy, soil blowing.
612 Sagouspe	Severe: seepage.	Severe: seepage, piping, excess sodium.	Deep to water	Soil blowing, excess sodium, excess salt.	Too sandy, soil blowing.
613 Sagouspe	Severe: seepage.	Severe: seepage, piping, wetness.	Flooding, frost action, cutbanks cave.	Wetness, droughty.	Erodes easily, wetness, too sandy.
621, 623 Saralegui	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Soil blowing.
625 Saralegui	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, soil blowing.	Soil blowing.
626 Saralegui	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Soil blowing.
627 Saralegui Variant	Slight	Severe: piping.	Deep to water	Droughty, fast intake, soil blowing.	Erodes easily, too sandy, soil blowing.
631 Singatse	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.
632*: Singatse	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.
Rock outcrop.					
633*: Singatse	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.
Theon	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
641 Tocan	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, soil blowing.	Too sandy, soil blowing.
642 Tocan	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, soil blowing, slope.	Too sandy, soil blowing.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
643 Tocan	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, slope.	Too sandy.
644*:					
Tocan	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, soil blowing.	Too sandy, soil blowing.
Yerington	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.
651 Theon	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
652*:					
Theon (30 to 50 percent slopes)	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
Theon (50 to 75 percent slopes)	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Olac	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
653*:					
Theon	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
Lapon	Severe: depth to rock, cemented pan, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Olac	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
654*:					
Theon	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
Old Camp	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
655*:					
Theon	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, fast intake, depth to rock.	Slope, depth to rock.
Yerington	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy.
661 Isolde	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
662*:					
Isolde	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
Patna	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Slope, too sandy.
663 Isolde	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy, soil blowing.
671 Toulon	Severe: seepage.	Severe: seepage.	Deep to water	Large stones, droughty.	Large stones, too sandy.
681 Yerington Variant	Moderate: slope.	Moderate: piping, excess salt.	Deep to water	Slope, erodes easily, excess salt.	Erodes easily.
691 Ultra	Slight	Severe: hard to pack, excess sodium, excess salt.	Deep to water	Percs slowly, excess sodium, excess salt.	Erodes easily, percs slowly.
701, 702 Veta	Severe: seepage.	Severe: seepage.	Deep to water	Large stones, droughty, slope.	Large stones, too sandy.
704 Veta	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, droughty, slope.	Slope, large stones, too sandy.
711*:					
Vylach	Severe: cemented pan.	Severe: thin layer.	Deep to water	Depth to rock, cemented pan, slope.	Depth to rock, cemented pan.
Weena	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Depth to rock, slope, erodes easily.	Slope, depth to rock, erodes easily.
721 Wabuska	Moderate: seepage.	Severe: piping, excess sodium.	Frost action, cutbanks cave, excess sodium.	Wetness, droughty, fast intake.	Wetness, too sandy.
722 Wabuska	Moderate: seepage.	Severe: piping, excess sodium.	Frost action, cutbanks cave, excess sodium.	Wetness	Erodes easily, wetness, too sandy.
723, 724 Wabuska	Moderate: seepage.	Severe: piping, excess sodium, excess salt.	Frost action, cutbanks cave, excess salt.	Wetness, erodes easily, excess sodium.	Erodes easily, wetness, too sandy.
725*:					
Wabuska	Moderate: seepage.	Severe: piping, excess sodium, excess salt.	Frost action, cutbanks cave, excess salt.	Wetness, erodes easily, excess sodium.	Erodes easily, wetness, too sandy.
Delp	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy.
Playas.					

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
731: Hunewill	Severe: seepage.	Severe: seepage, large stones, excess salt.	Deep to water	Large stones, droughty, soil blowing.	Large stones, too sandy.
732, 733: Hunewill	Severe: seepage, slope.	Severe: seepage, large stones, excess salt.	Deep to water	Large stones, droughty.	Slope, large stones, too sandy.
734: Hunewill	Severe: seepage.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.	Large stones, too sandy.
735: Hunewill	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones, too sandy.
741*:					
Wedertz	Slight	Severe: piping.	Deep to water	Soil blowing	Favorable.
Wellington	Severe: cemented pan.	Severe: piping, thin layer.	Deep to water	Cemented pan	Cemented pan, erodes easily.
Saralegui	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, soil blowing.	Soil blowing.
742*, 743*:					
Wedertz	Moderate: slope.	Severe: piping.	Deep to water	Soil blowing, slope.	Favorable.
Wellington	Severe: cemented pan.	Severe: piping, thin layer.	Deep to water	Cemented pan, slope.	Cemented pan, erodes easily.
744*:					
Wedertz	Severe: slope.	Severe: piping.	Deep to water	Soil blowing, slope.	Slope.
Saralegui	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, soil blowing.	Slope, soil blowing.
Wellington	Severe: cemented pan, slope.	Severe: piping, thin layer.	Deep to water	Cemented pan, slope.	Slope, cemented pan, erodes easily.
746*:					
Wellsed	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Cemented pan, too sandy, soil blowing.
Wedlar	Severe: seepage.	Severe: thin layer.	Deep to water	Fast intake, soil blowing, percs slowly.	Soil blowing, percs slowly.
751: Malpais	Severe: seepage.	Severe: large stones.	Deep to water	Large stones, droughty, fast intake.	Large stones.
753: Malpais	Severe: seepage.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Large stones.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
754*:					
Malpais (gravelly sandy loam)	Severe: seepage.	Severe: large stones.	Deep to water	Large stones, droughty.	Large stones.
Malpais (stony sandy loam)	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
755*:					
Malpais	Severe: seepage.	Severe: large stones.	Deep to water	Large stones, droughty, fast intake.	Large stones.
Yerington	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy, soil blowing.
761 Yerington	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.
762, 763 Yerington	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy, soil blowing.
764 Yerington	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy, soil blowing.
765 Yerington	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty	Too sandy.
766, 767 Yerington	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Too sandy.
771*:					
Biddleman (gravelly sandy loam)	Severe: seepage.	Severe: seepage, excess sodium.	Deep to water	Droughty, slope, excess sodium.	Erodes easily, too sandy.
Biddleman (very stony sandy loam)	Severe: seepage, slope.	Severe: seepage, excess sodium.	Deep to water	Droughty, slope.	Slope, erodes easily, too sandy.
781 Celeton	Severe: depth to rock, slope.	Severe: piping, hard to pack.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.
782*:					
Weena	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Depth to rock, slope, erodes easily.	Slope, depth to rock, erodes easily.
Malpais	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
791*:					
Plex	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.
Duco	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
792*:					
Pirouette	Severe: depth to rock, cemented pan.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, depth to rock.	Large stones, depth to rock.
Osobb	Severe: depth to rock, cemented pan, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
793 Pirouette	Severe: depth to rock, cemented pan, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty.	Slope, large stones, depth to rock.
802*:					
Loomer	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, depth to rock.
Zephan	Severe: slope.	Severe: large stones.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Olac	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
803*:					
Loomer (15 to 30 percent slopes)	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, depth to rock.
Loomer (30 to 50 percent slopes)	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, depth to rock.
811*:					
Trid (30 to 50 percent slopes)	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, soil blowing.	Slope, depth to rock, soil blowing.
Trid (4 to 15 percent slopes)	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, fast intake, soil blowing.	Slope, depth to rock, soil blowing.
Drit	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, soil blowing, slope.	Slope, soil blowing.
812*:					
Trid	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
Roloc	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.
Drit	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, soil blowing, slope.	Slope, soil blowing.
821*. Badland					

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
822*. Dumps					
823*. Gypsum land					
824*, 825*. Pits					
826*. Playas					
827*. Slickens					
831*:					
Ister	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Hyloc	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Lunder	Severe: cemented pan, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, cemented pan.
841*:					
Bradshaw	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
Martin	Severe: slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.
851*:					
Tennin	Moderate: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, percs slowly.	Large stones.
Shree	Severe: seepage.	Moderate: large stones.	Deep to water	Droughty, slope.	Large stones.
861 Shree	Severe: seepage.	Moderate: large stones.	Deep to water	Droughty, slope.	Large stones.
871*:					
Nall	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
Luppino	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.
Hotsprings	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
881*:					
Ravenell Variant	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, depth to rock, percs slowly.
Devils Variant	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
891*, 892*:					
Berit	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, fast intake, depth to rock.	Slope, depth to rock.
Shoken	Severe: depth to rock, slope.	Slight	Deep to water	Droughty, depth to rock.	Slope, depth to rock.
893*:					
Berit	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, fast intake, depth to rock.	Slope, depth to rock.
Sarallegui	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Soil blowing.
911*:					
Pulstone Variant	Moderate: cemented pan, slope.	Severe: hard to pack.	Deep to water	Percs slowly, cemented pan, slope.	Large stones, cemented pan, percs slowly.
Devilsgait	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Glean	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
921*:					
Glean	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.
Devilsgait	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
922*:					
Glean	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.
Devilsgait	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
923*:					
Glean	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.
Ticino	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock, erodes easily.
Hartig	Severe: slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.
932*:					
Shoken	Severe: depth to rock, slope.	Slight	Deep to water	Droughty, depth to rock.	Slope, depth to rock.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions
932*:					
Rock outcrop.					
951*:					
Koontz	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.
Ravenell	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Haar	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock, erodes easily.
961 Luppino	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.
971*:					
Minneha	Severe: depth to rock, slope.	Severe: seepage.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Drit	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
Rock outcrop.					
972*:					
Minneha	Severe: depth to rock, slope.	Severe: seepage.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Berit	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty.	Slope, large stones, depth to rock.
Wile	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, depth to rock, percs slowly.
981 Ravenell	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, percs slowly, depth to rock.	Slope, large stones, depth to rock.
982*:					
Ravenell	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, percs slowly, depth to rock.	Slope, large stones, depth to rock.
Haar	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock, erodes easily.
Rock outcrop.					
991*:					
Roloc	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.
Drit	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
1001 Rowel	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, depth to rock.
1002*:					
Rowel	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, depth to rock.
Rock outcrop.					
1011, 1012 Smedley	Severe: cemented pan.	Severe: seepage.	Deep to water	Percs slowly, cemented pan, slope.	Large stones, cemented pan.
1013*:					
Smedley (2 to 4 percent slopes)	Severe: cemented pan.	Severe: seepage.	Deep to water	Percs slowly, cemented pan, slope.	Large stones, cemented pan.
Smedley (4 to 15 percent slopes)	Severe: cemented pan, slope.	Severe: seepage.	Deep to water	Percs slowly, cemented pan, slope.	Slope, large stones, cemented pan.
1014*:					
Smedley (15 to 30 percent slopes)	Severe: cemented pan, slope.	Severe: seepage.	Deep to water	Percs slowly, cemented pan, slope.	Slope, large stones, cemented pan.
Smedley (4 to 15 percent slopes)	Severe: cemented pan, slope.	Severe: seepage.	Deep to water	Percs slowly, cemented pan, slope.	Slope, large stones, cemented pan.
1021 Springmeyer	Moderate: seepage.	Slight	Deep to water	Soil blowing	Too sandy, soil blowing.
1031*:					
Burnborough	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
Glean	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
1041*:					
Whichman	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, fast intake.	Slope, large stones, too sandy.
Ister	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Rock outcrop.					
1051 Zyzzi	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.
1072 Hawsley	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
1073*:					
Hawsley	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy, soil blowing.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
1073*:					
Gamgee	Severe: slope.	Severe: excess sodium.	Deep to water	Percs slowly, slope, excess sodium.	Slope, erodes easily.
1074 Hawsley	Severe: seepage.	Severe: seepage, piping, excess salt.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
1075*:					
Hawsley	Severe: seepage.	Severe: seepage, piping, excess salt.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.
Playas.					
1081 Stucky	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
1082*:					
Stucky (8 to 15 percent slopes)	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
Stucky (15 to 30 percent slopes)	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.
1083*:					
Stucky	Moderate: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Large stones.
Hunewill	Severe: seepage, slope.	Severe: seepage, large stones, excess salt.	Deep to water	Large stones, droughty.	Slope, large stones, too sandy.
Veta	Severe: seepage.	Severe: seepage.	Deep to water	Large stones, droughty, slope.	Large stones, too sandy.
1091*:					
Glean Variant	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, fast intake, soil blowing.	Slope, depth to rock, too sandy.
Hartig Variant	Severe: depth to rock, slope.	Severe: seepage.	Deep to water	Large stones, droughty, fast intake.	Slope, large stones, depth to rock.
Rubble land.					
1103*:					
Mirkwood	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.
Nemico	Severe: depth to rock, cemented pan.	Severe: thin layer.	Deep to water	Percs slowly	Depth to rock, cemented pan.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions
1110*:					
Surgem	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, percs slowly.	Slope, large stones, depth to rock.
Olac	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Cagle	Severe: slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, large stones, depth to rock.
1121*:					
Duco	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Nosrac	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, slope.	Slope, large stones.
1131 Gamgee	Severe: slope.	Severe: excess sodium.	Deep to water	Fast intake, soil blowing, percs slowly.	Slope, soil blowing, percs slowly.
1141*:					
Old Camp	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Mirkwood	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.
Nemico	Severe: depth to rock, cemented pan, slope.	Severe: thin layer.	Deep to water	Percs slowly	Slope, depth to rock, cemented pan.
1142*:					
Old Camp	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Holbrook Variant	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
1143*:					
Old Camp	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.
Reno Variant	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope. large stones, depth to rock.
Hyloc	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock.	Slope, depth to rock.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

[The symbol > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
101-------------- Ackley	0-10	Sandy loam-------	SM	A-2	0	85-100	80-100	55-70	25-35	---	NP
	10-34	Sandy loam, loam, sandy clay loam.	CL-ML, ML	A-4	0	85-100	75-100	65-85	50-70	25-35	5-10
	34-60	Fine sandy loam	SM	A-2, A-4	0	85-100	80-100	55-70	25-40	20-30	NP-5
102-------------- Ackley	0-10	Gravelly sandy loam.	SM	A-1, A-2	0	65-80	60-75	35-50	20-30	---	NP
	10-34	Sandy loam, loam, sandy clay loam.	CL-ML, ML	A-4	0	85-100	75-100	65-85	50-70	25-35	5-10
	34-60	Fine sandy loam	SM	A-2, A-4	0	85-100	80-100	55-70	25-40	20-30	NP-5
103*:											
Ackley-----------	0-10	Sandy loam-------	SM	A-2	0	85-100	80-100	55-70	25-35	---	NP
	10-34	Sandy loam, loam, sandy clay loam.	CL-ML, ML	A-4	0	85-100	75-100	65-85	50-70	25-35	5-10
	34-60	Fine sandy loam	SM	A-2, A-4	0	85-100	80-100	55-70	25-40	20-30	NP-5
Ackley Variant--	0-7	Sandy loam-------	SM	A-2, A-4	0	85-100	80-100	55-70	25-40	---	NP
	7-25	Sandy loam, loam, silt loam.	CL-ML, ML	A-4	0	95-100	85-100	65-85	50-70	25-35	5-10
	25-60	Gypsiferous material.	---	---	---	---	---	---	---	---	---
121-------------- Appian	0-8	Loamy sand-------	SM	A-2	0	95-100	90-100	50-65	15-30	---	NP
	8-18	Clay loam, sandy clay loam.	SC, CL	A-6, A-7	0	95-100	90-100	75-90	40-60	35-45	15-20
	18-60	Sand, coarse sand	SP, SP-SM	A-1	0	85-100	75-90	30-50	0-10	---	NP
122-------------- Appian	0-8	Loam-------------	CL-ML	A-4	0	95-100	90-100	75-95	55-70	20-30	5-10
	8-18	Clay loam, sandy clay loam.	SC, CL	A-6, A-7	0	95-100	90-100	75-90	40-60	35-45	15-20
	18-60	Sand, coarse sand	SP, SP-SM	A-1	0	85-100	75-90	30-50	0-10	---	NP
123*:											
Appian-----------	0-8	Loamy sand-------	SM	A-2	0	95-100	90-100	50-65	15-30	---	NP
	8-18	Clay loam, sandy clay loam.	SC, CL	A-6, A-7	0	95-100	90-100	75-90	40-60	35-45	15-20
	18-60	Sand, coarse sand	SP, SP-SM	A-1	0	85-100	75-90	30-50	0-10	---	NP
Wabuska----------	0-9	Loam-------------	CL-ML	A-4	0	100	100	85-100	65-85	25-30	5-10
	9-60	Stratified sand to silt loam.	SM, SM-SC, CL-ML, ML	A-4	0	100	90-100	60-75	40-60	20-30	NP-10
124*:											
Appian-----------	0-8	Loamy sand-------	SM	A-2	0	95-100	90-100	50-65	15-30	---	NP
	8-18	Clay loam, sandy clay loam.	SC, CL	A-6, A-7	0	95-100	90-100	75-90	40-60	35-45	15-20
	18-60	Sand, coarse sand	SP, SP-SM	A-1	0	85-100	75-90	30-50	0-10	---	NP
Delp-------------	0-1	Fine sand--------	SM	A-2	0	100	100	65-80	20-35	---	NP
	1-60	Stratified sandy loam to loamy sand.	SM	A-2	0	100	100	50-75	20-35	15-25	NP-5
141-------------- Bango	0-2	Sandy loam-------	SM	A-1, A-2	0-5	90-95	90-95	45-60	15-30	---	NP
	2-13	Loam, clay loam, sandy clay loam.	CL	A-6	0-5	90-100	90-100	75-90	55-75	30-35	10-15
	13-60	Stratified sand to silty clay.	CL	A-6	0-5	85-95	85-95	70-90	55-75	25-35	10-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
142--------------- Bango	0-2	Very gravelly loamy sand.	GP-GM, GM	A-1	0-5	40-55	35-50	20-35	5-15	---	NP
	2-13	Loam, clay loam, sandy clay loam.	CL	A-6	0-5	90-100	90-100	75-90	55-75	30-35	10-15
	13-60	Stratified gravelly fine sandy loam to silty clay.	CL	A-6	0-5	85-95	85-95	70-90	55-75	25-35	10-15
151--------------- Bluewing Variant	0-3	Clay--------------	CL, CH	A-7	0	100	100	95-100	85-95	45-65	25-40
	3-60	Clay, silty clay	CL, CH	A-7	0	100	100	95-100	85-95	45-65	25-40
161--------------- Bluewing	0-3	Very gravelly sand.	GP-GM	A-1	0-15	30-40	25-35	15-25	5-10	---	NP
	3-60	Stratified very gravelly sand to extremely gravelly loamy coarse sand.	GP-GM	A-1	10-25	30-40	25-35	15-25	5-10	---	NP
162--------------- Bluewing	0-5	Very stony loamy sand.	GP-GM	A-1	20-40	30-40	25-35	15-25	5-10	---	NP
	5-60	Stratified extremely gravelly sand to extremely gravelly loamy coarse sand.	GP-GM	A-1	15-25	30-40	25-35	15-25	5-10	---	NP
171*:											
Cagle------------	0-2	Very stony clay loam.	CL	A-6, A-7	25-35	85-95	80-90	75-85	55-65	35-45	15-25
	2-15	Gravelly clay, gravelly clay loam, gravelly silty clay.	CL, CH, GC	A-7	0-5	60-85	50-75	45-75	40-65	45-55	20-30
	15-30	Very gravelly clay, very cobbly clay loam, extremely gravelly clay.	GC	A-2	5-35	30-55	20-55	20-50	15-35	45-55	20-30
	30	Weathered bedrock	---	---	---	---	---	---	---	---	---
Nosrac-----------	0-12	Stony loam--------	SM-SC	A-2	5-20	60-70	55-65	45-55	15-25	20-25	5-10
	12-45	Very gravelly clay loam, very gravelly loam.	GC	A-2	5-25	45-55	40-50	30-45	25-35	35-40	15-20
	45-60	Very gravelly loam, very gravelly fine sandy loam, very gravelly clay loam.	GC	A-2, A-6	10-25	35-55	30-50	25-45	20-40	30-35	10-15
181, 182---------- Charlebois	0-8	Loam--------------	CL-ML, ML	A-4	0	100	95-100	80-95	60-75	25-35	5-10
	8-19	Clay loam---------	CL	A-6	0	100	90-100	85-100	70-80	35-40	15-20
	19-60	Loam--------------	CL-ML	A-4	0	85-100	80-100	70-95	50-75	25-30	5-10
184--------------- Charlebois	0-8	Gravelly loam-----	SM, SM-SC	A-4	0	75-85	65-75	60-70	40-50	25-35	5-10
	8-19	Clay loam---------	CL	A-6	0	100	90-100	85-100	70-80	35-40	15-20
	19-60	Loam--------------	CL-ML	A-4	0	85-100	80-100	70-95	50-75	25-30	5-10
185--------------- Charlebois	0-8	Sandy loam--------	SM	A-2, A-4	0	95-100	90-100	55-70	30-40	15-25	NP-5
	8-19	Clay loam---------	CL	A-6	0	100	90-100	85-100	70-80	35-40	15-20
	19-60	Loam--------------	CL-ML	A-4	0	85-100	80-100	70-95	50-75	25-30	5-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
191*:											
Chill----------- (8 to 15 percent slopes)	0-3	Gravelly sandy loam.	SM	A-1, A-2	0	80-95	55-75	40-55	20-35	---	NP
	3-7	Gravelly sandy clay loam.	SC	A-2	0	90-100	50-75	40-60	25-35	35-45	15-20
	7	Weathered bedrock	---	---	---	---	---	---	---	---	---
Chill----------- (15 to 30 percent slopes)	0-3	Gravelly sandy loam.	SM	A-1, A-2	0	80-95	55-75	40-55	20-35	---	NP
	3-7	Gravelly sandy clay loam.	SC	A-2	0	90-100	50-75	40-60	25-35	35-45	15-20
	7	Weathered bedrock	---	---	---	---	---	---	---	---	---
201-------------- Cleaver	0-6	Loamy fine sand	SM	A-2, A-4	0	100	90-100	70-85	30-45	---	NP
	6-14	Gravelly clay loam.	SC, CL	A-6, A-7	0-5	75-85	60-75	50-70	45-60	35-45	15-20
	14-40	Indurated--------	---	---	---	---	---	---	---	---	---
202-------------- Cleaver	0-3	Gravelly sandy loam.	SM	A-1, A-2	0-5	70-85	60-75	35-50	20-35	---	NP
	3-11	Gravelly clay loam, gravelly loam.	SC, CL	A-6, A-7	0-5	75-85	50-75	45-70	40-60	35-50	15-25
	11-26	Indurated--------	---	---	---	---	---	---	---	---	---
204-------------- Cleaver	0-3	Stony sandy loam	GM	A-1	5-10	45-60	35-50	20-35	15-25	---	NP
	3-11	Gravelly clay loam, gravelly loam.	SC, CL	A-6, A-7	0-5	75-85	50-75	45-70	40-60	35-50	15-25
	11-46	Indurated--------	---	---	---	---	---	---	---	---	---
206, 207--------- Cleaver	0-3	Very stony loam	GM-GC	A-2, A-4	15-25	50-65	40-55	30-45	25-40	20-30	5-10
	3-11	Gravelly clay loam, gravelly loam.	SC, CL	A-6, A-7	0-5	75-85	50-75	45-70	40-60	35-50	15-25
	11-46	Indurated--------	---	---	---	---	---	---	---	---	---
208*:											
Cleaver--------- (2 to 4 percent slopes)	0-3	Gravelly sandy loam.	SM	A-1, A-2	0-5	70-85	60-75	35-50	20-35	---	NP
	3-11	Gravelly clay loam, gravelly loam.	SC, CL	A-6, A-7	0-5	75-85	50-75	45-70	40-60	35-50	15-25
	11-46	Indurated--------	---	---	---	---	---	---	---	---	---
Cleaver--------- (4 to 15 percent slopes)	0-3	Stony sandy loam	GM	A-1	5-10	45-60	35-50	20-35	15-25	---	NP
	3-11	Gravelly clay loam, gravelly loam.	SC, CL	A-6, A-7	0-5	75-85	50-75	45-70	40-60	35-50	15-25
	11-46	Indurated--------	---	---	---	---	---	---	---	---	---
209*:											
Cleaver--------- (15 to 30 percent slopes)	0-3	Very gravelly sandy loam.	GM	A-1	0-10	35-50	25-35	20-30	10-20	---	NP
	3-11	Gravelly clay loam, gravelly loam.	SC, CL	A-6, A-7	0-5	75-85	50-75	45-70	40-60	35-50	15-25
	11-46	Indurated--------	---	---	---	---	---	---	---	---	---
Cleaver--------- (4 to 15 percent slopes)	0-3	Gravelly sandy loam.	SM	A-1, A-2	0-5	70-85	60-75	35-50	20-35	---	NP
	3-11	Gravelly clay loam, gravelly loam.	SC, CL	A-6, A-7	0-5	75-85	50-75	45-70	40-60	35-50	15-25
	11-46	Indurated--------	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
221-------------- Dalzell	0-3	Sand-------------	SP-SM, SM	A-2, A-3	0	100	95-100	50-65	5-15	---	NP
	3-21	Sandy clay loam, loam, silty clay loam.	SC, CL	A-6, A-7	0	100	100	80-100	45-85	30-45	10-25
	21-28	Cemented---------	---	---	---	---	---	---	---	---	---
	28-60	Sandy loam, loamy sand, gravelly coarse sand.	SM, SP-SM	A-2, A-3, A-1	0	100	70-100	30-70	5-35	---	NP
223-------------- Dalzell	0-3	Clay loam--------	CL	A-6, A-7	0	100	100	90-100	70-80	35-45	15-25
	3-21	Sandy clay loam, loam, silty clay loam.	SC, CL	A-6, A-7	0	100	100	80-100	45-85	30-45	10-25
	21-28	Cemented---------	---	---	---	---	---	---	---	---	---
	28-60	Sandy loam, loamy sand, gravelly coarse sand.	SM, SP-SM	A-2, A-3, A-1	0	100	70-100	30-70	5-35	---	NP
231*: Delp------------	0-5	Loamy sand-------	SM	A-2	0	100	100	50-75	10-25	---	NP
	5-19	Stratified sandy loam to loamy sand.	SM	A-2	0	100	100	50-75	20-35	15-25	NP-5
	19-60	Stratified sand to loamy fine sand.	SM	A-2	0	100	100	60-80	10-25	---	NP
Lox--------------	0-3	Gravelly fine sandy loam.	SM	A-2, A-4	0-5	80-95	60-75	50-60	30-45	15-25	NP-5
	3-8	Clay loam, loam, sandy clay loam.	CL	A-6, A-7	0	90-100	75-100	70-90	60-75	35-45	15-25
	8-60	Very gravelly sandy loam, very gravelly loam.	GM, SP-GM	A-1, A-2	0-5	35-60	25-50	15-35	5-30	15-25	NP-5
232*: Delp------------	0-5	Fine sand--------	SM	A-2	0	100	100	65-80	20-35	---	NP
	5-19	Stratified sandy loam to loamy sand.	SM	A-2	0	100	100	50-75	20-35	15-25	NP-5
	19-60	Stratified sand to loamy fine sand.	SM	A-2	0	100	100	60-80	10-25	---	NP
Orizaba----------	0-3	Loam-------------	CL-ML, CL	A-4, A-6	0	100	100	85-95	65-75	25-35	5-15
	3-60	Stratified silty clay loam to sand.	CL	A-6	0	100	95-100	85-95	70-85	35-40	15-20
233-------------- Delp	0-5	Sand-------------	SM	A-2	0	100	100	50-75	10-25	---	NP
	5-19	Stratified sandy loam to loamy sand.	SM	A-2	0	100	100	50-75	20-35	15-25	NP-5
	19-60	Stratified sand to loamy fine sand.	SM	A-2	0	100	100	60-80	10-25	---	NP
241*: Devada----------	0-4	Very cobbly loam	GC, GM-GC, SC, SM-SC	A-2, A-4, A-6	30-65	55-75	50-70	40-50	30-45	25-35	5-15
	4-13	Gravelly clay, clay.	CH, GC	A-7	0-5	65-100	55-100	50-90	35-70	50-65	25-35
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
242*:											
Devada	0-5	Very cobbly loam	GC, SM-SC, SC, SM-SC	A-2, A-4, A-6	30-65	55-75	50-70	40-50	30-45	25-35	5-15
	5-18	Gravelly clay, clay.	CH, GC	A-7	0-5	65-100	55-100	50-90	35-70	50-65	25-35
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
251 Dia	0-20	Loam	CL-ML, CL	A-4, A-6	0	100	95-100	85-95	55-70	25-35	5-15
	20-60	Sand, coarse sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-70	5-15	---	NP
252 Dia	0-9	Clay loam	CL	A-6	0	100	95-100	90-100	65-75	35-40	15-20
	9-24	Stratified sandy loam to silty clay loam.	CL-ML, CL	A-4, A-6	0	100	95-100	75-95	60-75	25-35	5-15
	24-60	Sand, coarse sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-70	5-15	---	NP
253 Dia	0-9	Clay loam	CL	A-6, A-7	0	100	100	90-100	75-90	35-45	15-20
	9-19	Stratified sandy loam to silty clay loam.	CL-ML	A-4	0	100	95-100	75-95	60-75	25-30	5-10
	19-60	Sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-70	5-15	---	NP
254*:											
Dia	0-9	Clay loam	CL	A-6, A-7	0	100	100	90-100	75-90	35-45	15-20
	9-19	Stratified sandy loam to silty clay loam.	CL-ML	A-4	0	100	95-100	75-95	60-75	25-30	5-10
	19-60	Sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-70	5-15	---	NP
Dithod (clay loam, wet)	0-11	Clay loam	CL	A-6	0	100	100	80-100	60-75	35-40	15-20
	11-60	Stratified clay loam to loamy fine sand.	SM-SC, SM, CL-ML, ML	A-4	0	80-100	80-100	70-95	40-55	25-35	5-10
Dithod (loam, saline-alkali)	0-11	Loam	CL-ML, ML	A-4	0	100	100	80-100	50-65	25-35	5-10
	11-60	Stratified clay loam to loamy fine sand.	SM-SC, SM, CL-ML, ML	A-4	0	80-100	80-100	70-95	40-55	25-35	5-10
255*:											
Dia	0-19	Loam	CL-ML, CL	A-4, A-6	0	100	95-100	85-95	55-70	25-35	5-15
	19-24	Stratified sandy loam to silty clay loam.	CL-ML, CL	A-4, A-6	0	100	95-100	75-95	60-75	25-35	5-15
	24-60	Sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-70	5-15	---	NP
Dithod	0-11	Clay loam	CL	A-6, A-7	0	100	100	90-100	60-75	35-45	15-20
	11-20	Silt loam, loam	CL-ML, ML	A-4	0	100	100	90-100	50-65	25-35	5-10
	20-60	Stratified clay loam to loamy fine sand.	SM-SC, SM, CL-ML, ML	A-4	0	90-100	85-100	75-90	45-55	25-35	5-10
256*:											
Dia	0-19	Loam	CL-ML, CL	A-4, A-6	0	100	95-100	85-95	55-70	25-35	5-15
	19-24	Stratified sandy loam to silty clay loam.	CL-ML, CL	A-4, A-6	0	100	95-100	75-95	60-75	25-35	5-15
	24-60	Sand, coarse sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-70	5-15	---	NP
Sagouspe (sandy loam)	0-16	Sandy loam	SM, ML	A-4	0	100	100	70-85	40-55	10-20	NP-5
	16-60	Stratified coarse sand to silt loam.	SM	A-2, A-4	0	100	100	50-75	15-40	10-20	NP-5

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
256*:											
Sagouspe--------- (loamy sand)	0-16	Loamy sand-------	SM	A-2	0	100	100	50-70	10-20	---	NP
	16-60	Stratified coarse sand to silt loam.	SM	A-2, A-4	0	100	100	50-75	15-40	10-20	NP-5
261--------------- Dithod	0-11	Loam-------------	CL-ML, CL	A-4, A-6	0	100	100	80-100	65-80	25-35	5-15
	11-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-85	25-35	5-15
	20-60	Stratified clay loam to sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	80-90	60-75	25-35	5-15
262--------------- Dithod	0-11	Loam-------------	CL-ML	A-4	0	100	100	85-95	60-75	25-30	5-10
	11-40	Silt loam, loam	CL	A-6	0	100	100	85-100	65-85	25-35	10-15
	40-60	Clay loam, silty clay loam.	CL, ML	A-6, A-7	0	100	100	90-100	75-90	35-45	10-20
263--------------- Dithod	0-11	Clay loam--------	CL	A-6	0	100	100	80-100	60-75	35-40	15-20
	11-60	Stratified clay loam to loamy fine sand.	SM-SC, SM, CL-ML, ML	A-4	0	80-100	80-100	70-95	40-55	25-35	5-10
264--------------- Dithod	0-11	Loam-------------	CL-ML, ML	A-4	0	100	100	80-100	50-65	25-35	5-10
	11-60	Stratified clay loam to loamy fine sand.	SM-SC, SM, CL-ML, ML	A-4	0	80-100	80-100	70-95	40-55	25-35	5-10
265--------------- Dithod	0-11	Clay loam--------	CL	A-6	0	100	100	80-100	65-80	35-40	15-20
	11-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-85	25-35	5-15
	20-60	Stratified clay loam to sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	80-90	60-75	25-35	5-15
268--------------- Dithod	0-11	Clay loam--------	CL	A-6	0	100	100	80-100	60-75	35-40	15-20
	11-60	Stratified clay loam to loamy fine sand.	SM-SC, SM, CL-ML, ML	A-4	0	80-100	80-100	70-95	40-55	25-35	5-10
269*:											
Dithod-----------	0-11	Loam-------------	CL-ML, CL	A-4, A-6	0	100	100	80-100	65-80	25-35	5-15
	11-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-85	25-35	5-15
	20-60	Stratified clay loam to sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	80-90	60-75	25-35	5-15
Sagouspe---------	0-16	Sandy loam-------	SM, ML	A-4	0	100	100	70-85	40-55	10-20	NP-5
	16-60	Stratified coarse sand to silt loam.	SM	A-2, A-4	0	100	100	50-75	15-40	10-20	NP-5
Dia--------------	0-5	Loam-------------	CL-ML, CL	A-4, A-6	0	100	95-100	85-95	55-70	25-35	5-15
	5-29	Stratified sandy loam to silty clay loam.	CL-ML, CL	A-4, A-6	0	100	95-100	75-95	60-75	25-35	5-15
	29-60	Sand, coarse sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-70	5-15	---	NP
271--------------- East Fork	0-14	Loam-------------	CL	A-6	0	100	100	85-95	65-70	30-35	10-15
	14-60	Stratified sand to clay.	CL	A-6, A-7	0	100	90-100	85-100	65-80	35-45	15-20
272--------------- East Fork	0-14	Loam-------------	CL	A-6	0	95-100	85-100	80-95	60-75	30-35	10-15
	14-60	Sandy clay loam, clay loam.	CL	A-6, A-7	0	100	95-100	85-100	60-80	35-45	15-20
274--------------- East Fork	0-14	Clay loam--------	CL	A-6, A-7	0	100	100	90-95	70-75	35-45	15-20
	14-60	Stratified sand to clay.	CL	A-6, A-7	0	100	90-100	85-100	65-80	35-45	15-20

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
275 East Fork	0-14	Clay loam	CL	A-6, A-7	0	100	95-100	90-100	70-85	35-45	15-20
	14-60	Stratified sand to clay.	CL	A-6	0	100	95-100	70-85	50-75	30-40	10-15
276 East Fork	0-8	Clay loam	CL	A-6	0	100	100	90-100	70-85	35-40	15-20
	8-40	Clay loam, sandy clay loam.	CL	A-6, A-7	0	100	95-100	85-100	60-80	35-45	15-20
	40-60	Clay, silty clay, silty clay loam.	CL	A-7	0	100	100	90-100	85-100	45-50	20-25
277 East Fork	0-14	Gravelly clay loam.	CL, GC, SC	A-6, A-7	0	60-85	50-75	40-65	35-60	30-45	10-20
	14-60	Stratified sand to clay.	CL	A-6, A-7	0	100	90-100	85-100	65-80	35-45	15-20
291 Fallon	0-10	Sand	SM, SP-SM	A-3, A-2	0	100	100	50-70	5-15	---	NP
	10-60	Stratified sand to silt loam.	SM, ML	A-4	0	95-100	85-100	70-90	40-60	---	NP
292 Fallon	0-10	Fine sandy loam	SM	A-4, A-2	0	100	100	60-80	25-40	---	NP
	10-60	Stratified sand to silt loam.	SM, ML	A-4	0	95-100	85-100	70-90	40-60	---	NP
293 Fallon	0-10	Fine sandy loam	SM	A-4	0	100	100	65-80	35-50	15-25	NP-5
	10-60	Stratified sand to silt loam.	SM, ML	A-4	0	95-100	85-100	70-90	40-60	15-25	NP-5
294 Fallon	0-10	Fine sandy loam	SM	A-4	0	100	100	65-80	35-50	15-25	NP-5
	10-60	Stratified sand to silt loam.	SM, ML	A-4	0	95-100	85-100	70-90	40-60	15-25	NP-5
295 Fallon	0-10	Sandy loam	SM	A-4	0	100	100	65-80	35-50	15-25	NP-5
	10-60	Stratified sand to silt loam.	SM, ML	A-4	0	95-100	85-100	70-90	40-60	15-25	NP-5
301 Fernley	0-8	Loamy sand	SM, SP-SM	A-2, A-3	0	95-100	90-100	50-70	5-25	---	NP
	8-60	Stratified fine sand to coarse sand.	SP-SM, SM	A-1, A-3, A-2	0	85-100	75-100	45-70	5-15	---	NP
302 Fernley	0-8	Loamy sand	SM, SP-SM	A-2, A-3	0	95-100	90-100	50-70	5-25	---	NP
	8-60	Stratified fine sand to coarse sand.	SP-SM, SM	A-1, A-3, A-2	0	95-100	85-100	45-70	5-15	---	NP
311, 312 Fulstone	0-5	Cobbly loam	GM-GC, SM-SC	A-4	15-30	65-80	65-75	50-60	35-50	20-30	5-10
	5-18	Clay	CH, MH	A-7	0-5	95-100	90-100	85-100	70-85	50-65	20-35
	18-30	Indurated	---	---	---	---	---	---	---	---	---
	30-48	Very cobbly sandy loam, extremely cobbly sandy loam.	GP-GM, GM	A-1	30-45	25-55	20-50	15-35	5-20	15-25	NP-5
313*:											
Fulstone (4 to 15 percent slopes)	0-5	Very stony sandy loam.	GM	A-1, A-2	25-40	50-65	45-60	35-50	20-30	15-25	NP-5
	5-18	Clay	CH, MH	A-7	0-5	95-100	90-100	85-100	70-85	50-65	20-35
	18-30	Indurated	---	---	---	---	---	---	---	---	---
	30-48	Very cobbly sandy loam, extremely cobbly sandy loam.	GP-GM, GM	A-1	30-45	25-55	20-50	15-35	5-20	15-25	NP-5

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
313*:											
Pulstone-------- (15 to 30 percent slopes)	0-5	Very stony sandy loam.	GM	A-1, A-2	25-40	50-65	45-60	35-50	20-30	15-25	NP-5
	5-18	Clay-------------	CH, MH	A-7	0-5	95-100	90-100	85-100	70-85	50-65	20-35
	18-30	Indurated--------	---	---	---	---	---	---	---	---	---
	30-48	Very cobbly sandy loam, extremely cobbly sandy loam.	GP-GM, GM	A-1	30-45	25-55	20-50	15-35	5-20	15-25	NP-5
314*:											
Pulstone-------- (4 to 15 percent slopes)	0-5	Cobbly loam------	GM-GC, SM-SC	A-4	15-30	65-80	65-75	50-60	35-50	20-30	5-10
	5-18	Clay-------------	CH, MH	A-7	0-5	95-100	90-100	85-100	70-85	50-65	20-35
	18-30	Indurated--------	---	---	---	---	---	---	---	---	---
	30-48	Very cobbly sandy loam, extremely cobbly sandy loam.	GP-GM, GM	A-1	30-45	25-55	20-50	15-35	5-20	15-25	NP-5
Reno------------	0-3	Cobbly sandy loam	SM	A-1, A-2	15-30	75-95	65-90	45-65	20-30	15-25	NP-5
	3-24	Clay, sandy clay, gravelly clay.	SC, CH, CL	A-7	0-5	80-100	70-95	60-85	45-75	45-55	25-35
	24-44	Indurated--------	---	---	---	---	---	---	---	---	---
	44-60	Very gravelly loamy sand, extremely gravelly loamy sand.	GP-GM, GM	A-1	5-10	30-55	20-50	15-30	5-15	---	NP
Pulstone-------- (15 to 30 percent slopes)	0-5	Stony loam-------	GM-GC	A-4	15-30	60-75	50-65	45-60	35-50	20-30	5-10
	5-18	Clay-------------	CH, MH	A-7	0-5	95-100	90-100	85-100	70-85	50-65	20-35
	18-30	Indurated--------	---	---	---	---	---	---	---	---	---
	30-48	Very cobbly sandy loam, extremely cobbly sandy loam.	GP-GM, GM	A-1	30-45	25-55	20-50	15-35	5-20	15-25	NP-5
315*:											
Pulstone--------	0-5	Cobbly loam------	GM-GC, SM-SC	A-4	15-30	65-80	65-75	50-60	35-50	20-30	5-10
	5-18	Clay-------------	CH, MH	A-7	0-5	95-100	90-100	85-100	70-85	50-65	20-35
	18-30	Indurated--------	---	---	---	---	---	---	---	---	---
	30-48	Very cobbly sandy loam, extremely cobbly sandy loam.	GP-GM, GM	A-1	30-45	25-55	20-50	15-35	5-20	15-25	NP-5
Stucky----------	0-6	Extremely cobbly loam.	GM	A-1, A-2	35-45	40-50	30-40	25-35	15-30	15-25	NP-5
	6-20	Extremely cobbly sandy clay loam, very cobbly sandy clay loam.	GC	A-2	35-75	45-60	35-50	30-45	15-30	30-40	15-20
	20-60	Stratified extremely cobbly sandy loam to very stony clay loam.	GC, GM-GC	A-2	35-50	45-60	35-50	25-45	15-35	20-35	5-15
321------------- Haybourne	0-11	Loam-------------	ML	A-4	0	95-100	85-95	80-90	50-60	20-30	NP-5
	11-32	Sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2	0	70-90	65-85	50-60	25-35	---	NP
	32-60	Stratified gravelly coarse sand to fine sandy loam.	SM	A-1, A-2	0	90-100	75-85	45-55	15-30	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
331*:											
Hocar-----------	0-9	Gravelly loam----	GM	A-2, A-4	0-5	60-80	50-75	40-60	30-50	20-25	NP-5
	9-19	Very gravelly loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-1, A-2	0-5	15-50	10-45	10-35	5-25	20-30	NP-10
	19	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rock outcrop.											
341--------------- Holbrook	0-10	Very stony sandy loam.	SM	A-1, A-2	25-30	60-70	50-60	35-45	20-30	15-20	NP-5
	10-60	Stratified stony sand to extremely gravelly loam.	GM	A-1	10-25	45-60	40-55	25-35	10-20	---	NP
343*:											
Holbrook--------	0-7	Stony sandy loam	SM	A-1, A-2	5-10	80-90	70-80	45-55	20-30	---	NP
	7-60	Stratified stony sand to extremely gravelly loam.	GM	A-1	10-25	45-60	40-55	25-35	10-20	---	NP
Hotsprings------	0-5	Gravelly loamy coarse sand.	SM	A-1	0	80-95	50-75	30-45	10-25	---	NP
	5-60	Gravelly loamy sand, gravelly loamy coarse sand.	SM	A-1	0-10	80-95	55-70	35-50	10-25	---	NP
344*:											
Holbrook--------	0-8	Stony sandy loam	SM	A-1, A-2	5-10	80-90	70-80	45-55	20-30	---	NP
	8-60	Stratified stony sand to extremely gravelly loam.	GM	A-1	10-25	45-60	40-55	25-35	10-20	---	NP
Shree-----------	0-10	Very gravelly loam.	GM-GC, GC	A-2	0-5	40-60	35-50	30-50	20-35	25-35	5-15
	10-26	Very gravelly sandy clay loam, very gravelly clay loam, extremely gravelly sandy clay loam.	GC	A-2	5-10	45-55	25-40	20-30	10-25	35-45	15-20
	26-60	Very gravelly sandy loam, extremely gravelly loam, very gravelly fine sandy loam.	GC, GM-GC	A-2	0-30	45-55	25-40	15-25	10-15	20-35	5-15
345*:											
Holbrook Variant	0-9	Very stony fine sandy loam.	GM	A-1	25-30	35-45	25-35	20-30	10-20	---	NP
	9-35	Very gravelly fine sandy loam, very cobbly sandy loam, extremely cobbly sandy loam.	GM	A-1	10-50	30-55	25-50	20-40	10-15	---	NP
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
352--------------- Hotsprings	0-4	Loamy coarse sand	SM	A-2, A-1	0	95-100	85-95	45-70	15-30	---	NP
	4-60	Gravelly loamy sand, gravelly loamy coarse sand.	SM	A-1	0-10	80-95	55-70	35-50	10-25	---	NP
353--------------- Hotsprings	0-4	Gravelly loamy coarse sand.	SM	A-1	0	80-95	50-75	30-45	10-25	---	NP
	4-60	Gravelly loamy sand, gravelly loamy coarse sand.	SM	A-1	0-10	80-95	55-70	35-50	10-25	---	NP
354*: Hotsprings-------	0-4	Gravelly loamy coarse sand.	SM	A-1	0	80-95	50-75	30-45	10-25	---	NP
	4-60	Gravelly loamy sand, gravelly loamy coarse sand.	SM	A-1	0-10	80-95	55-70	35-50	10-25	---	NP
Holbrook---------	0-8	Cobbly loamy coarse sand.	SM	A-1	20-30	75-90	45-65	25-40	10-20	---	NP
	8-60	Stratified stony sand to extremely gravelly loam.	GM	A-1	10-25	45-60	40-55	25-35	10-20	---	NP
361--------------- Hough	0-10	Sand---------------	SM	A-2	0	100	90-100	50-75	10-20	---	NP
	10-21	Sandy loam, sandy clay loam.	CL, SC	A-6	0	100	90-100	80-90	35-55	25-35	10-15
	21-60	Stratified fine sand to coarse sand.	SM, SP-SM	A-2, A-3	0	90-100	85-95	50-75	5-25	---	NP
371*: Hyloc------------	0-5	Very cobbly sandy loam.	SM-SC	A-2	45-55	70-80	50-60	35-45	15-25	25-30	5-10
	5-18	Gravelly clay, clay.	CH	A-7	5-15	85-95	80-95	70-90	55-65	50-60	25-35
	18-24	Weathered bedrock	---	---	---	---	---	---	---	---	---
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ister------------	0-17	Extremely stony sandy loam.	GM, SM	A-1, A-2	30-40	45-70	40-65	30-45	15-35	20-30	NP-5
	17-38	Very stony sandy clay loam, very stony clay loam.	GC, SC	A-2, A-6, A-7	35-45	60-85	55-80	40-60	30-50	35-45	15-20
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
372*: Hyloc------------	0-5	Very cobbly sandy loam.	SM-SC	A-2	45-55	70-80	50-60	35-45	15-25	25-30	5-10
	5-18	Gravelly clay, clay.	CH	A-7	5-15	85-95	80-95	70-90	55-65	50-60	25-35
	18-24	Weathered bedrock	---	---	---	---	---	---	---	---	---
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ister------------	0-17	Very stony sandy loam.	GM, SM	A-2, A-4	20-30	60-80	55-75	35-55	25-40	20-30	NP-5
	17-38	Very stony sandy clay loam, very stony clay loam.	GC, SC	A-2, A-6, A-7	35-45	60-85	55-80	40-60	30-50	35-45	15-20
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
391--------------- Juva	0-4	Gravelly silt loam.	SM, ML, GM	A-4	0-5	60-85	50-75	45-70	40-60	15-25	NP-5
	4-60	Stratified gravelly sand to loam.	SM	A-2, A-1	0-5	60-100	55-95	40-60	20-35	20-35	NP-5
392--------------- Juva	0-4	Gravelly fine sandy loam.	SM, GM	A-2	0-5	60-85	50-75	40-65	25-35	15-25	NP-5
	4-60	Stratified gravelly sand to loam.	SM	A-2, A-1	0-5	60-100	55-95	40-60	20-35	20-35	NP-5
401--------------- Lahontan	0-12	Silty clay loam--	CL	A-6	0	95-100	90-100	80-100	70-85	30-40	10-15
	12-60	Stratified clay to silt loam.	CL, CH	A-7	0	100	100	90-100	70-90	45-65	20-35
411--------------- Lapon	0-2	Extremely stony loam.	GM-GC, GM	A-2	40-50	50-60	35-50	30-40	20-35	25-35	5-10
	2-10	Very gravelly clay loam.	GC	A-2	10-25	40-60	35-55	25-50	20-35	35-40	15-20
	10-20	Indurated---------	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
412*:											
Lapon------------	0-2	Extremely stony loam.	GM-GC, GM	A-2	40-50	50-60	35-50	30-40	20-35	25-35	5-10
	2-10	Very gravelly clay loam.	GC	A-2	10-25	40-60	35-55	25-50	20-35	35-40	15-20
	10-36	Indurated---------	---	---	---	---	---	---	---	---	---
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rubble land.											
Rock outcrop.											
413*:											
Lapon------------	0-6	Very cobbly silt loam.	GM-GC, GM	A-2, A-4	25-40	45-70	40-65	30-50	25-40	25-35	5-10
	6-14	Very gravelly clay loam.	GC	A-2	10-25	40-60	35-55	25-50	20-35	35-40	15-20
	14-40	Indurated---------	---	---	---	---	---	---	---	---	---
	40	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Fulstone---------	0-5	Cobbly loam-------	GM-GC, SM-SC	A-4	15-30	65-80	65-75	50-60	35-50	20-30	5-10
	5-18	Clay--------------	CH, MH	A-7	0-5	95-100	90-100	85-100	70-85	50-65	20-35
	18-30	Indurated---------	---	---	---	---	---	---	---	---	---
	30-48	Very cobbly sandy loam, extremely cobbly sandy loam.	GP-GM, GM	A-1	30-45	25-55	20-50	15-35	5-20	15-25	NP-5
Old Camp---------	0-4	Very stony loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	4-17	Very cobbly clay loam, extremely stony sandy clay loam, very stony loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
441--------------- Lunder	0-7	Very cobbly loam	CL-ML, CL	A-4, A-6	40-65	75-90	70-85	70-85	50-65	25-35	5-15
	7-16	Cobbly clay-------	CH	A-7	15-30	70-85	65-80	60-75	55-70	55-70	30-40
	16-31	Indurated---------	---	---	---	---	---	---	---	---	---
	31-60	Extremely cobbly sandy loam.	GP-GM, GM	A-1	45-65	40-55	30-45	20-35	5-20	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
451--------------- Ohanion	0-11	Loamy coarse sand	SM	A-1, A-2	0	90-100	85-100	30-60	15-30	---	NP
	11-60	Stratified sandy loam to sandy clay loam.	SC	A-6, A-7	0	95-100	90-100	70-85	35-50	30-45	10-20
452, 453---------- Ohanion	0-11	Sandy loam--------	SM, SM-SC	A-2, A-4	0	95-100	85-100	55-70	25-40	20-30	NP-10
	11-60	Stratified sandy loam to sandy clay loam.	SC	A-6, A-7	0	95-100	90-100	70-85	35-50	30-45	10-20
462*: Olac-------------	0-4	Very stony loam	GC	A-2	25-55	40-60	35-55	25-40	20-30	25-30	10-15
	4-14	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-20	30-45	20-35	15-30	10-25	30-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
464*: Olac-------------	0-3	Very stony loam	GC	A-2	25-55	40-60	35-55	25-40	20-30	25-30	10-15
	3-10	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-20	30-45	20-35	15-30	10-25	30-40	15-20
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
466*: Olac-------------	0-4	Very stony loam	GC	A-2	25-55	40-60	35-55	25-40	20-30	25-30	10-15
	4-14	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-20	30-45	20-35	15-30	10-25	30-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Iater------------	0-11	Extremely stony sandy loam.	GM, SM	A-1, A-2	30-40	45-70	40-65	30-45	15-35	20-30	NP-5
	11-38	Very stony sandy clay loam, very stony clay loam.	GC, SC	A-2, A-6, A-7	35-45	60-85	55-80	40-60	30-50	35-45	15-20
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
471*: Oppio-----------	0-6	Very stony fine sandy loam.	SM	A-1, A-2	25-35	65-75	45-65	35-50	20-30	10-20	NP-5
	6-31	Clay--------------	CL, CH	A-7	0-5	85-100	80-100	55-95	50-90	45-55	20-30
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nosrac-----------	0-12	Stony clay loam	GC	A-6	5-20	60-70	55-65	50-60	40-50	30-35	10-15
	12-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	5-25	45-55	40-50	30-45	25-35	35-40	15-20
481--------------- Orizaba	0-3	Sandy loam--------	SM	A-2, A-4	0	100	95-100	60-70	30-40	20-30	NP-5
	3-60	Stratified silty clay loam to sand.	CL	A-6	0	100	95-100	75-90	50-80	30-40	10-20

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
482 Orizaba	0-3	Loam	CL-ML, CL	A-4, A-6	0	100	100	85-95	65-75	25-35	5-15
	3-60	Stratified silty clay loam to sand.	CL	A-6	0	100	95-100	75-90	50-80	30-40	10-20
483 Orizaba	0-3	Loam	CL-ML, CL	A-4, A-6	0	100	100	85-95	65-75	25-35	5-15
	3-60	Stratified silty clay loam to sand.	CL	A-6	0	100	95-100	85-95	70-85	35-40	15-20
484 Orizaba	0-3	Silty clay loam	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
	3-60	Stratified silty clay loam to sand.	CL	A-6	0	100	95-100	75-90	50-80	30-40	10-20
486*:											
Orizaba	0-3	Loam	CL-ML, CL	A-4, A-6	0	100	100	85-95	65-75	25-35	5-15
	3-60	Stratified silty clay loam to sand.	CL	A-6	0	100	95-100	75-90	50-80	30-40	10-20
Delp	0-5	Sand	SM	A-2	0	100	100	50-75	10-25	---	NP
	5-19	Stratified sandy loam to loamy sand.	SM	A-2	0	100	100	50-75	20-35	15-25	NP-5
	19-60	Stratified sand to loamy fine sand.	SM	A-2	0	100	100	60-80	10-25	---	NP
491 Otomo	0-4	Gravelly sandy loam.	SM, GM	A-1, A-2	0-10	55-75	50-70	30-45	15-30	15-25	NP-5
	4-10	Very gravelly sandy loam.	GM	A-1	0-10	35-55	30-50	15-30	10-20	15-25	NP-5
	10-23	Indurated	---	---	---	---	---	---	---	---	---
	23-60	Extremely gravelly loamy sand, extremely gravelly sandy loam, very gravelly sandy loam.	GP-GM, GP	A-1	0-15	15-55	10-50	5-20	0-10	---	NP
501 Parran	0-3	Silty clay loam	CL	A-7	0	100	100	95-100	85-100	40-45	15-20
	3-40	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-100	45-60	20-30
	40-60	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-100	45-60	20-30
511, 512 Patna	0-5	Fine sand	SM	A-2	0	95-100	95-100	70-80	20-35	---	NP
	5-21	Sandy loam, fine sandy loam.	SM-SC	A-4	0	95-100	95-100	65-80	35-50	25-30	5-10
	21-60	Fine sand, loamy fine sand.	SM	A-2	0	95-100	95-100	60-70	15-35	---	NP
514 Patna	0-8	Loamy sand	SM	A-2	0	95-100	95-100	60-70	10-25	---	NP
	8-15	Sandy loam	SM	A-4	0	95-100	95-100	65-80	35-50	25-30	NP-5
	15-43	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	95-100	95-100	60-70	5-20	---	NP
	43-60	Silt loam, silty clay loam.	CL	A-6	0	95-100	95-100	85-95	75-90	30-40	10-20
516 Patna	0-5	Sand	SM	A-2	0	95-100	95-100	60-70	10-25	---	NP
	5-15	Sandy loam, fine sandy loam.	SM-SC	A-4	0	95-100	95-100	65-80	35-50	25-30	5-10
	15-60	Fine sand, loamy fine sand.	SM	A-2	0	95-100	95-100	60-70	15-35	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
517*:											
Patna	0-5	Loamy sand	SM	A-2	0	95-100	95-100	60-70	10-25	---	NP
	5-15	Sandy loam, fine sandy loam.	SM-SC	A-4	0	95-100	95-100	65-80	35-50	25-30	5-10
	15-60	Fine sand, loamy fine sand.	SM	A-2	0	95-100	95-100	60-70	15-35	---	NP
Hough	0-10	Sand	SM	A-2	0	100	90-100	50-75	10-20	---	NP
	10-21	Sandy loam, sandy clay loam.	CL, SC	A-6	0	100	90-100	80-90	35-55	25-35	10-15
	21-60	Stratified fine sand to coarse sand.	SM, SP-SM	A-2, A-3	0	90-100	85-95	50-75	5-25	---	NP
Playas.											
518 Patna	0-3	Sandy loam	SM	A-2, A-4	0	95-100	95-100	60-70	30-40	---	NP
	3-30	Sandy loam	SM	A-4	0	95-100	95-100	65-80	35-50	25-30	NP-5
	30-60	Gravelly coarse sand.	SP-SM, SM	A-1	0	85-95	50-60	20-30	5-15	---	NP
519 Patna	0-7	Loam	ML	A-4	0	95-100	95-100	85-95	60-75	20-25	NP-5
	7-34	Sandy loam, fine sandy loam.	SM-SC	A-4	0	95-100	95-100	65-80	35-50	25-30	5-10
	34-60	Sand, sandy loam	SP-SM, SM	A-2, A-3	0	95-100	95-100	50-60	5-20	---	NP
521 Pizene	0-6	Sandy loam	SM	A-2, A-4	0	100	75-100	60-70	30-40	15-20	NP-5
	6-21	Sandy clay loam, sandy loam.	SC	A-6	0	100	100	70-85	35-50	30-40	10-20
	21-60	Sandy loam, fine sandy loam.	SM, ML	A-4	0	100	100	70-85	35-55	15-20	NP-5
522*:											
Pizene	0-6	Sandy loam	SM	A-2, A-4	0	100	75-100	60-70	30-40	15-20	NP-5
	6-21	Sandy clay loam, sandy loam.	SC	A-6	0	100	100	70-85	35-50	30-40	10-20
	21-60	Sandy loam, fine sandy loam.	SM, ML	A-4	0	100	100	70-85	35-55	15-20	NP-5
Orizaba	0-3	Silty clay loam	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
	3-60	Stratified silty clay loam to sand.	CL	A-6	0	100	95-100	75-90	50-80	30-40	10-20
523 Pizene	0-6	Loam	CL-ML	A-4	0	100	95-100	75-90	60-75	20-30	5-10
	6-21	Sandy clay loam, sandy loam.	SC	A-6	0	100	100	70-85	35-50	30-40	10-20
	21-60	Sandy loam, fine sandy loam.	SM, ML	A-4	0	100	100	70-85	35-55	15-20	NP-5
524 Pizene	0-6	Loamy fine sand	SM	A-2	0	100	95-100	70-85	20-35	---	NP
	6-21	Sandy clay loam, sandy loam.	SC	A-6	0	100	100	70-85	35-50	30-40	10-20
	21-60	Sandy loam, fine sandy loam.	SM, ML	A-4	0	100	100	70-85	35-55	15-20	NP-5
531 Perazzo	0-4	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-5	55-70	50-65	45-60	30-45	20-30	5-10
	4-18	Very gravelly sandy clay loam, very gravelly clay loam.	GC	A-2	0-5	40-60	35-50	30-40	20-35	30-40	10-15
	18-60	Extremely gravelly sand, extremely gravelly loamy sand.	GP-GM, GP	A-1	0-5	20-30	15-25	10-20	0-10	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
532 Perazzo	0-4	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-5	55-70	50-65	45-60	30-45	20-30	5-10
	4-13	Very gravelly sandy clay loam, very gravelly clay loam.	GC	A-2	0-5	40-60	35-50	30-40	20-35	30-40	10-15
	13-21	Extremely gravelly sandy loam, extremely gravelly loam.	GP-GM, GM	A-1	0-5	20-30	15-25	10-20	5-15	---	NP
	21-60	Extremely gravelly sand, extremely gravelly loamy sand.	GP-GM, GP	A-1	0-5	20-30	15-25	10-20	0-10	---	NP
534 Perazzo	0-4	Very gravelly sandy loam.	GM	A-1	0-10	40-60	35-50	25-35	10-20	20-30	NP-5
	4-18	Very gravelly sandy clay loam, very gravelly clay loam.	GC	A-2	0-5	40-60	35-50	30-40	20-35	30-40	10-15
	18-60	Extremely gravelly sand, extremely gravelly loamy sand.	GP-GM, GP	A-1	0-5	20-30	15-25	10-20	0-10	---	NP
535 Perazzo	0-4	Very stony sandy loam.	GM	A-1	20-30	40-55	35-50	20-35	10-20	20-30	NP-5
	4-18	Very gravelly sandy clay loam, very gravelly clay loam.	GC	A-2	0-5	40-60	35-50	30-40	20-35	30-40	10-15
	18-60	Extremely gravelly sand, extremely gravelly loamy sand.	GP-GM, GP	A-1	0-5	20-30	15-25	10-20	0-10	---	NP
541*: Uripnes	0-9	Very gravelly sandy loam.	GM, SM	A-1	0-5	50-65	30-45	20-35	10-20	---	NP
	9-30	Weathered bedrock	---	---	---	---	---	---	---	---	---
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chill	0-3	Gravelly sandy loam.	SM	A-1, A-2	0	80-95	55-75	40-55	20-35	---	NP
	3-7	Gravelly sandy clay loam.	SC	A-2	0	90-100	50-75	40-60	25-35	35-45	15-20
	7	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rock outcrop.											
551 Rawe	0-1	Gravelly sandy loam.	SM	A-1, A-2	0	70-90	60-75	35-50	20-35	15-25	NP-5
	1-10	Gravelly clay, clay.	SC, CL	A-7	0	75-95	50-90	40-65	35-60	40-50	15-25
	10-60	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very gravelly coarse sandy loam.	GP, GP-GM, GM	A-1	0	45-60	10-50	5-35	0-20	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
552*:											
Rawe------------- (gravelly sandy loam)	0-1	Gravelly sandy loam.	SM	A-1, A-2	0	70-90	60-75	35-50	20-35	15-25	NP-5
	1-10	Gravelly clay, clay.	SC, CL	A-7	0	75-95	60-90	40-65	35-60	40-50	15-25
	10-60	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very gravelly coarse sandy loam.	GP, GP-GM, GM	A-1	0	45-60	10-50	5-35	0-20	---	NP
Rawe------------- (loamy sand)	0-12	Loamy sand-------	SM	A-1, A-2	0	95-100	90-100	45-75	15-30	---	NP
	12-21	Gravelly clay, clay.	SC, CL	A-7	0	75-95	60-90	40-65	35-60	40-50	15-25
	21-60	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very gravelly coarse sandy loam.	GP, GP-GM, GM	A-1	0	45-60	10-50	5-35	0-20	---	NP
553*:											
Rawe-------------	0-1	Gravelly sandy loam.	SM	A-1, A-2	0	70-90	60-75	35-50	20-35	15-25	NP-5
	1-10	Gravelly clay, clay.	SC, CL	A-7	0	75-95	60-90	40-65	35-60	40-50	15-25
	10-60	Extremely gravelly coarse sandy loam, very gravelly sandy loam, very gravelly coarse sandy loam.	GP, GP-GM, GM	A-1	0	45-60	10-50	5-35	0-20	---	NP
Malpais----------	0-3	Gravelly sandy loam.	SM	A-1	0-10	70-85	60-75	35-50	15-25	15-25	NP-5
	3-25	Very gravelly loam, very gravelly sandy loam, very cobbly sandy loam.	GM	A-1, A-2	5-25	50-60	35-50	30-45	20-35	20-25	NP-5
	25-60	Extremely cobbly loam, very cobbly loam, extremely cobbly sandy loam.	GM	A-1, A-2	40-50	40-55	35-50	25-35	20-30	20-25	NP-5
561-------------- Rebel	0-14	Sandy loam-------	SM-SC	A-2	0	95-100	90-100	50-65	20-35	20-25	5-10
	14-60	Fine sandy loam, sandy loam, loam.	CL-ML	A-4	0	100	85-95	70-80	50-60	20-30	5-10
571-------------- Reno	0-5	Gravelly sandy loam.	SM, GM	A-1, A-2	5-10	60-75	50-75	35-50	20-30	15-25	NP-5
	5-27	Clay, sandy clay, gravelly clay.	SC, CH, CL	A-7	0-5	60-100	55-95	50-85	45-75	45-55	25-35
	27-41	Indurated--------	---	---	---	---	---	---	---	---	---
	41-60	Very gravelly loamy sand, extremely gravelly loamy sand.	GP-GM, GM	A-1	5-10	30-55	20-50	15-30	5-15	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
572-------------- Reno	0-5	Cobbly sandy loam	SM	A-1, A-2	15-30	75-95	65-90	45-65	20-30	15-25	NP-5
	5-27	Clay, sandy clay, gravelly clay.	SC, CH, CL	A-7	0-5	80-100	70-95	60-85	45-75	45-55	25-35
	27-41	Indurated--------	---	---	---	---	---	---	---	---	---
	41-60	Very gravelly loamy sand, extremely gravelly loamy sand.	GP-GM, GM	A-1	5-10	30-55	20-50	15-30	5-15	---	NP
581-------------- Risue	0-1	Extremely stony loam.	GM-GC	A-2	20-40	25-40	20-35	15-35	10-30	25-30	5-10
	1-16	Clay, clay loam, gravelly sandy clay.	CL, CH	A-7	0-5	75-100	70-100	60-90	50-70	45-60	20-35
	16-60	Indurated--------	---	---	---	---	---	---	---	---	---
582-------------- Risue	0-1	Gravelly loam----	GM-GC, SM-SC	A-4	5-15	65-80	60-75	45-60	35-50	25-30	5-10
	1-16	Clay, clay loam, gravelly sandy clay.	CL, CH	A-7	0-5	75-100	70-100	60-90	50-70	45-60	20-35
	16-60	Indurated--------	---	---	---	---	---	---	---	---	---
591-------------- Rose Creek	0-18	Loam-------------	ML	A-4	0	95-100	90-100	80-90	60-70	25-30	NP-5
	18-60	Stratified gravelly sand to silt loam.	SM	A-2, A-4	0	85-100	70-95	50-70	30-50	20-25	NP-5
601-------------- Rusty	0-9	Sand-------------	SM	A-2	0	100	90-100	55-70	15-30	---	NP
	9-22	Sandy clay loam, loam.	SC	A-6	0	100	90-100	80-90	35-50	30-40	10-15
	22-60	Stratified sand to silt loam.	SM, ML	A-4	0	100	100	70-85	40-60	---	NP
603*:											
Rusty-----------	0-9	Sand-------------	SM	A-2	0	100	90-100	55-70	15-30	---	NP
	9-22	Sandy clay loam, loam.	SC	A-6	0	100	90-100	80-90	35-50	30-40	10-15
	22-60	Stratified sand to silt loam.	SM, ML	A-4	0	100	100	70-85	40-60	---	NP
Isolde----------	0-7	Fine sand--------	SP, SP-SM	A-3	0	100	100	75-90	0-10	---	NP
	7-60	Fine sand, sand	SP, SP-SM	A-3	0	100	100	60-85	0-10	---	NP
604*:											
Rusty-----------	0-9	Sand-------------	SM	A-2	0	100	90-100	55-70	15-30	---	NP
	9-22	Sandy clay loam, loam.	SC	A-6	0	100	90-100	80-90	35-50	30-40	10-15
	22-60	Stratified sand to silt loam.	SM, ML	A-4	0	100	100	70-85	40-60	---	NP
Playas.											
611-------------- Sagouspe	0-8	Sandy loam-------	SM, ML	A-4	0	100	100	70-85	40-55	10-20	NP-5
	8-60	Stratified coarse sand to silt loam.	SM	A-2, A-4	0	100	100	50-75	15-40	10-20	NP-5
612-------------- Sagouspe	0-8	Sandy loam-------	SM	A-2, A-4	0	100	100	60-75	30-45	15-25	NP-5
	8-60	Stratified sand to loamy fine sand.	SM	A-2	0	100	100	50-75	15-25	---	NP
613-------------- Sagouspe	0-8	Loam-------------	ML	A-4	0	95-100	85-100	65-80	50-65	25-35	NP-10
	8-60	Sand, loamy sand	SP-SM, SM	A-1, A-2, A-3	0	90-100	80-95	35-55	5-25	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
621-------------- Saralegui	0-5	Loamy sand-------	SM	A-1, A-2,	0	95-100	85-95	45-55	10-20	---	NP
	5-39	Sandy loam, coarse sandy loam, gravelly sandy loam.	SM-SC	A-2	0-5	90-100	65-90	50-60	20-30	25-30	5-10
	39-60	Gravelly sandy loam, loamy sand, sand.	SM	A-1, A-2	0-5	95-100	65-95	45-55	10-20	---	NP
623-------------- Saralegui	0-5	Loamy sand-------	SP-SM, SM	A-1, A-2, A-3	0	95-100	85-95	45-55	5-15	---	NP
	5-39	Sandy loam, coarse sandy loam, gravelly sandy loam.	SM-SC	A-2	0-5	90-100	65-90	50-60	20-30	25-30	5-10
	39-60	Gravelly sandy loam, loamy sand, sand.	SM	A-1, A-2	0-5	95-100	65-95	45-55	10-20	---	NP
625-------------- Saralegui	0-5	Sandy loam-------	SM	A-2	0	95-100	85-95	55-65	25-35	---	NP
	5-32	Sandy loam, coarse sandy loam, gravelly sandy loam.	SM-SC	A-2	0-5	90-100	65-90	50-60	20-30	25-30	5-10
	32-60	Gravelly sandy loam, loamy sand, sand.	SM	A-1, A-2	0-5	95-100	65-95	45-55	10-20	---	NP
626-------------- Saralegui	0-5	Loamy sand-------	SP-SM, SM	A-1, A-2, A-3	0	95-100	85-95	45-55	5-15	---	NP
	5-32	Sandy loam, coarse sandy loam, gravelly sandy loam.	SM-SC	A-2	0-5	90-100	65-90	50-60	20-30	25-30	5-10
	32-60	Gravelly sandy loam, loamy sand, sand.	SM	A-1, A-2	0-5	95-100	65-95	45-55	10-20	---	NP
627-------------- Saralegui Variant	0-4	Loamy sand-------	SM	A-2	0	100	85-100	50-65	15-30	---	NP
	4-20	Sandy loam-------	SM	A-2, A-4	0	100	85-100	50-65	25-40	20-25	NP-5
	20-60	Stratified sand to silty clay loam.	ML, SM, CL-ML, SM-SC	A-4	0	100	100	90-100	40-50	20-30	NP-10
631-------------- Singatse	0-6	Very gravelly sandy loam.	SM	A-1	0-10	70-80	45-55	30-40	15-25	15-25	NP-5
	6-12	Weathered bedrock	---	---	---	---	---	---	---	---	---
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
632*:											
Singatse--------	0-6	Very gravelly sandy loam.	SM	A-1	0-10	70-80	45-55	30-40	15-25	15-25	NP-5
	6-12	Weathered bedrock	---	---	---	---	---	---	---	---	---
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
633*:											
Singatse--------	0-6	Very gravelly loam.	SM	A-1	0-10	70-80	45-55	30-40	15-25	15-25	NP-5
	6-12	Weathered bedrock	---	---	---	---	---	---	---	---	---
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Theon-----------	0-2	Very gravelly loam.	GM-GC, SM	A-1, A-2	5-10	40-60	30-50	20-45	15-35	20-30	NP-10
	2-11	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	5-15	40-60	30-50	25-40	15-30	30-40	10-20
	11-16	Weathered bedrock	---	---	---	---	---	---	---	---	---
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
641, 642--------- Tocan	0-6	Sandy loam-------	SM	A-2, A-4	0	90-100	85-100	55-70	25-40	15-25	NP-5
	6-15	Gravelly loam, gravelly sandy clay loam, sandy clay loam.	SC	A-6	0	75-100	70-100	55-70	35-50	30-40	10-15
	15-60	Stratified loam to very gravelly sand.	SP-SM, SM	A-1	0	65-80	55-70	30-45	5-20	---	NP
643-------------- Tocan	0-6	Gravelly sandy loam.	SM	A-1, A-2	0	75-90	50-75	40-55	20-35	15-25	NP-5
	6-15	Gravelly loam, gravelly sandy clay loam, sandy clay loam.	SC	A-6	0	75-100	70-100	55-70	35-50	30-40	10-15
	15-60	Stratified loam to very gravelly sand.	SP-SM, SM	A-1	0	65-80	55-70	30-45	5-20	---	NP
644*:											
Tocan-----------	0-8	Sandy loam-------	SM	A-2, A-4	0	90-100	85-100	55-70	25-40	15-25	NP-5
	8-17	Gravelly loam, gravelly sandy clay loam, sandy clay loam.	SC	A-6	0	75-100	70-100	55-70	35-50	30-40	10-15
	17-60	Stratified loam to very gravelly sand.	SP-SM, SM	A-1	0	65-80	55-70	30-45	5-20	---	NP
Yerington-------	0-8	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-30	---	NP
	8-60	Stratified loamy coarse sand to very fine sandy loam.	SM	A-2	0-5	80-100	75-100	50-75	15-25	---	NP
651-------------- Theon	0-2	Very gravelly sandy loam.	GM-GC, SM	A-1, A-2	5-10	40-60	30-50	20-45	15-35	20-30	NP-10
	2-11	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	5-15	40-60	30-50	25-40	15-30	30-40	10-20
	11-16	Weathered bedrock	---	---	---	---	---	---	---	---	---
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
652*:											
Theon----------- (30 to 50 percent slopes)	0-2	Very gravelly loam.	GM-GC, GM	A-1, A-2	5-10	40-60	30-50	20-45	15-35	20-30	NP-10
	2-11	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	5-15	40-60	30-50	25-40	15-30	30-40	10-20
	11-16	Weathered bedrock	---	---	---	---	---	---	---	---	---
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Theon----------- (50 to 75 percent slopes)	0-2	Very stony loam	GM-GC, SM-SC	A-2, A-4	15-55	55-80	45-75	35-50	20-45	20-30	5-10
	2-11	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	5-10	40-60	25-50	15-40	10-30	30-40	10-20
	11-16	Weathered bedrock	---	---	---	---	---	---	---	---	---
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Olac------------	0-4	Very stony loam	GC	A-2	25-55	40-60	35-55	25-40	20-30	25-30	10-15
	4-12	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-20	30-45	20-35	15-30	10-25	30-40	15-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
653*:											
Theon-----------	0-2	Very gravelly loam.	GM-GC, GM	A-1, A-2	5-10	40-60	30-50	20-45	15-35	20-30	NP-10
	2-11	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	5-15	40-60	30-50	25-40	15-30	30-40	10-20
	11-16	Weathered bedrock	---	---	---	---	---	---	---	---	---
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Lapon-----------	0-6	Extremely stony loam.	GM-GC, GM	A-2	40-50	50-60	35-50	30-40	20-35	25-35	5-10
	6-14	Very gravelly clay loam.	GC	A-2	10-25	40-60	35-55	25-50	20-35	35-40	15-20
	14-40	Indurated--------	---	---	---	---	---	---	---	---	---
	40	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Olac------------	0-4	Very stony loam	GC	A-2	25-55	40-60	35-55	25-40	20-30	25-30	10-15
	4-12	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-20	30-45	20-35	15-30	10-25	30-40	15-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
654*:											
Theon-----------	0-2	Very stony loam	GM-GC, SM-SC	A-2, A-4	15-55	55-80	45-75	35-50	20-45	20-30	5-10
	2-11	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	5-10	40-60	25-50	15-40	10-30	30-40	10-20
	11-16	Weathered bedrock	---	---	---	---	---	---	---	---	---
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
654*:											
Rock outcrop.											
Old Camp--------	0-4	Very stony loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	4-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
655*:											
Theon-----------	0-10	Gravelly loamy fine sand.	GM, SM	A-1, A-2	0-5	55-80	50-75	45-70	10-20	---	NP
	10-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	5-15	40-60	30-50	25-40	15-30	30-40	10-20
	14-20	Weathered bedrock	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Yerington-------	0-8	Gravelly loamy fine sand.	SM	A-1, A-2	0-5	70-85	60-75	35-60	20-35	---	NP
	8-60	Stratified loamy coarse sand to very fine sandy loam.	SM	A-2	0-5	80-100	75-100	50-75	15-25	---	NP
661-------------- Isolde	0-7	Fine sand--------	SP, SP-SM	A-3	0	100	100	75-90	0-10	---	NP
	7-60	Fine sand, sand	SP, SP-SM	A-3	0	100	100	60-85	0-10	---	NP
662*:											
Isolde----------	0-7	Fine sand--------	SP, SP-SM	A-3	0	100	100	75-90	0-10	---	NP
	7-60	Fine sand, sand	SP, SP-SM	A-3	0	100	100	60-85	0-10	---	NP
Patna-----------	0-5	Fine sand--------	SM	A-2	0	95-100	95-100	70-80	20-35	---	NP
	5-15	Sandy loam, fine sandy loam.	SM-SC	A-4	0	95-100	95-100	65-80	35-50	25-30	5-10
	15-60	Fine sand, loamy fine sand.	SM	A-2	0	95-100	95-100	60-70	15-35	---	NP
663-------------- Isolde	0-6	Fine sand--------	SP, SP-SM	A-3	0	100	100	75-90	0-10	---	NP
	6-60	Fine sand, sand	SP, SP-SM	A-3	0	100	100	60-85	0-10	---	NP
671-------------- Toulon	0-5	Gravelly loam----	SM, GM	A-4	0-10	60-80	50-75	45-65	35-50	20-25	NP-5
	5-13	Very gravelly sandy loam, very gravelly loam, very gravelly coarse sandy loam.	GM	A-1, A-2	0-5	40-60	25-40	15-35	10-30	---	NP
	13-60	Stratified gravelly coarse sand to extremely cobbly coarse sand.	GP, GW, GP-GM, GW-GM	A-1	25-50	40-50	25-40	5-20	0-10	---	NP
681-------------- Yerington Variant	0-4	Loam-------------	CL, CL-ML	A-4, A-6	0	100	100	80-95	60-80	20-35	5-15
	4-60	Stratified loam to clay loam.	CL	A-6	0	100	100	80-95	60-80	25-40	10-20

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
691---------------- Ultra	0-2	Gravelly fine sandy loam.	GM, SM	A-1, A-2, A-4	0-5	60-85	50-75	40-65	20-50	---	NP
	2-11	Clay, silty clay, silty clay loam.	CL, MH, ML	A-7	0-5	90-100	85-100	80-90	60-75	40-55	15-25
	11-60	Stratified silt loam to clay.	ML, MH, CL	A-7	0	100	100	80-90	60-75	40-55	15-25
701---------------- Veta	0-6	Very gravelly sandy loam.	GM	A-1	0-25	40-55	35-50	20-35	10-20	---	NP
	6-18	Extremely gravelly loam, very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	10-30	40-55	30-50	20-40	10-30	---	NP
	18-60	Stratified extremely gravelly loamy sand to very gravelly loam.	GP-GM, GM	A-1	10-25	30-55	20-50	15-35	5-20	---	NP
702---------------- Veta	0-6	Very gravelly sandy loam.	GP-GM, GM	A-1	0-25	40-55	35-50	20-35	10-20	---	NP
	6-18	Extremely gravelly loam, very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	10-30	40-55	30-50	20-40	15-30	---	NP
	18-60	Stratified extremely gravelly loamy sand to very gravelly loam.	GP-GM, GM	A-1	10-25	30-55	20-50	15-35	5-20	---	NP
704---------------- Veta	0-6	Very cobbly sandy loam.	GM	A-1	25-45	40-50	35-45	20-35	10-20	---	NP
	6-18	Extremely gravelly loam, very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	10-30	40-55	30-50	20-40	10-30	---	NP
	18-60	Stratified extremely gravelly loamy sand to very gravelly loam.	GP-GM, GM	A-1	10-25	30-55	20-50	15-35	5-20	---	NP
711*: Vylach------------	0-5	Gravelly sandy loam.	SM	A-1, A-2	0-1	75-90	65-75	40-55	20-35	---	NP
	5-12	Sandy clay loam, clay loam.	SC, CL	A-6, A-7	0	90-100	80-95	70-85	35-60	35-50	15-25
	12-27	Cemented----------	---	---	---	---	---	---	---	---	---
	27-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Weena------------	0-7	Loam--------------	CL-ML, CL	A-6, A-4	0-5	85-100	80-100	70-90	55-75	20-35	5-15
	7-17	Weathered bedrock	---	---	---	---	---	---	---	---	---
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
721---------------- Wabuska	0-9	Loamy sand--------	SM	A-2	0	100	95-100	55-70	15-30	---	NP
	9-60	Stratified sand to silt loam.	SM, SM-SC, CL-ML, ML	A-4	0	100	90-100	60-75	40-60	20-30	NP-10
722, 723, 724----- Wabuska	0-9	Loam--------------	CL-ML	A-4	0	100	100	85-100	65-85	25-30	5-10
	9-60	Stratified sand to silt loam.	SM, SM-SC, CL-ML, ML	A-4	0	100	90-100	60-75	40-60	20-30	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
725*:											
Wabuska	0-9	Loam	CL-ML	A-4	0	100	100	85-100	65-85	25-30	5-10
	9-60	Stratified sand to silt loam.	SM, SM-SC, CL-ML, ML	A-4	0	100	90-100	60-75	40-60	20-30	NP-10
Delp	0-5	Sand	SM	A-2	0	100	100	50-75	10-25	---	NP
	5-19	Stratified sandy loam to loamy sand.	SM	A-2	0	100	100	50-75	20-35	15-25	NP-5
	19-60	Sand, loamy fine sand.	SM	A-2	0	100	100	60-80	10-25	---	NP
Playas.											
731 Hunewill	0-3	Sandy loam	SM	A-2	0-10	80-100	75-95	50-60	25-35	15-25	NP-5
	3-13	Very gravelly clay loam, very gravelly sandy clay loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	13-18	Very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-25	45-55	40-50	25-45	15-35	15-25	NP-5
	18-60	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
732, 733 Hunewill	0-3	Stony loam	CL-ML	A-4	10-25	85-100	60-95	75-90	60-75	20-30	5-10
	3-13	Very gravelly clay loam, very gravelly sandy clay loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	13-18	Very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-25	45-55	40-50	25-45	15-35	15-25	NP-5
	18-60	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
734, 735 Hunewill	0-3	Very gravelly sandy loam.	GM	A-1	0-10	35-55	30-50	20-35	10-20	---	NP
	3-13	Very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	13-18	Very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-25	45-55	40-50	25-45	15-35	15-25	NP-5
	18-60	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
741*:											
Wedertz	0-9	Coarse sandy loam	SM	A-2	0	90-100	85-95	40-65	15-35	<25	NP-5
	9-28	Sandy clay loam, clay loam.	SC, CL	A-2, A-6	0	90-100	90-100	70-90	30-55	30-40	10-20
	28-60	Sandy loam, loam	SM-SC, CL-ML	A-2, A-4	0-5	90-100	90-100	55-75	25-55	25-30	5-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
741*:											
Wellington------	0-4	Coarse sandy loam	SM	A-1, A-2	0	85-95	80-90	45-55	20-35	---	NP
	4-15	Sandy clay loam, sandy loam.	SC	A-6	0	90-100	85-100	70-80	40-50	30-40	15-25
	15-26	Indurated--------	---	---	---	---	---	---	---	---	---
	26-60	Very fine sandy loam.	SM, ML	A-4	0	100	95-100	80-90	40-55	20-30	NP-5
Saralegui-------	0-5	Sandy loam-------	SM	A-2	0	95-100	85-95	55-65	25-35	---	NP
	5-32	Sandy loam, coarse sandy loam, gravelly sandy loam.	SM-SC	A-2	0-5	90-100	65-90	50-60	20-30	25-30	5-10
	32-60	Gravelly sandy loam, loamy sand, sand.	SM	A-1, A-2	0-5	95-100	65-95	45-55	10-20	---	NP
742*, 743*:											
Wedertz---------	0-9	Coarse sandy loam	SM	A-2, A-1	0	90-100	85-95	40-65	15-35	15-25	NP-5
	9-28	Sandy clay loam, clay loam.	SC, CL	A-2, A-6	0	90-100	90-100	70-90	30-55	30-40	10-20
	28-60	Sandy loam, loam	SM-SC, CL-ML	A-2, A-4	0-5	90-100	90-100	55-75	25-55	25-30	5-10
Wellington------	0-4	Coarse sandy loam	SM	A-1, A-2	0	85-95	80-90	45-55	20-35	---	NP
	4-15	Sandy clay loam, sandy loam.	SC	A-6	0	90-100	85-100	70-80	40-50	30-40	15-25
	15-26	Indurated--------	---	---	---	---	---	---	---	---	---
	26-60	Very fine sandy loam.	SM, ML	A-4	0	100	95-100	80-90	40-55	20-30	NP-5
744*:											
Wedertz---------	0-9	Coarse sandy loam	SM	A-2, A-1	0	90-100	85-95	40-65	15-35	15-25	NP-5
	9-28	Sandy clay loam, clay loam.	SC, CL	A-2, A-6	0	90-100	90-100	70-90	30-55	30-40	10-20
	28-60	Sandy loam, loam	SM-SC, CL-ML	A-2, A-4	0-5	90-100	90-100	55-75	25-55	25-30	5-10
Saralegui-------	0-4	Sandy loam-------	SM	A-2	0	95-100	85-95	55-65	25-35	---	NP
	4-36	Sandy loam, coarse sandy loam, gravelly sandy loam.	SM-SC	A-2	0-5	90-100	65-90	50-60	20-30	25-30	5-10
	36-61	Gravelly sandy loam, loamy sand, sand.	SM	A-1, A-2	0-5	95-100	65-95	45-55	10-20	---	NP
Wellington------	0-4	Coarse sandy loam	SM	A-1, A-2	0	85-95	80-90	45-55	20-35	---	NP
	4-15	Sandy clay loam, sandy loam.	SC	A-6	0	90-100	85-100	70-80	40-50	30-40	15-25
	15-26	Indurated--------	---	---	---	---	---	---	---	---	---
	26-60	Very fine sandy loam.	SM, ML	A-4	0	100	95-100	80-90	40-55	20-30	NP-5
746*:											
Wellsed---------	0-6	Gravelly fine sand.	SM	A-1, A-2	0-5	80-95	50-75	40-65	15-30	---	NP
	6-15	Gravelly sandy clay loam.	SC	A-2, A-6	0-5	80-95	50-75	35-60	25-40	30-40	10-20
	15-35	Gravelly loamy sand, loamy sand.	SM	A-1	0-5	80-95	50-90	30-50	10-20	---	NP
	35-50	Indurated--------	---	---	---	---	---	---	---	---	---
	50-60	Stratified loamy sand to gravelly sandy loam.	SM	A-1, A-2	0-5	85-95	60-90	30-55	15-25	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
746*:											
Wedlar	0-6	Loamy sand	SM	A-1, A-2	0-5	90-100	85-100	40-70	15-30	---	NP
	6-14	Loam	CL-ML	A-4	0-5	90-100	85-100	75-90	50-75	25-30	5-10
	14-37	Sandy clay loam, sandy clay.	SC	A-2, A-6, A-7	0-5	85-95	75-90	60-75	30-50	35-45	15-20
	37-60	Gravelly sandy loam, gravelly loamy sand.	SM, SM-SC, GM, GM-GC	A-1, A-2, A-4	0-10	55-80	50-75	35-60	15-40	15-30	NP-10
751 Malpais	0-3	Gravelly loamy sand.	SM	A-1	0-10	70-85	60-75	35-50	15-25	15-25	NP-5
	3-25	Very gravelly loam, very gravelly sandy loam, very cobbly sandy loam.	GM	A-1, A-2	5-25	50-60	35-50	30-45	20-35	20-25	NP-5
	25-60	Extremely cobbly loam, very cobbly loam, extremely cobbly sandy loam.	GM	A-1, A-2	40-50	40-55	35-50	25-35	20-30	20-25	NP-5
753 Malpais	0-10	Cobbly sandy loam	SM	A-1, A-2	15-20	70-90	65-85	40-55	20-35	15-25	NP-5
	10-25	Very gravelly loam, very cobbly fine sandy loam, very stony sandy loam.	GM	A-1	40-50	30-40	25-35	20-30	10-20	20-30	NP-5
	25-60	Very stony loam, very cobbly fine sandy loam, extremely cobbly sandy loam.	GM	A-1, A-2	40-50	45-55	35-50	25-45	20-30	20-30	NP-5
754*:											
Malpais (gravelly sandy loam)	0-3	Gravelly sandy loam.	SM	A-1	0-10	70-85	60-75	35-50	15-25	15-25	NP-5
	3-25	Very gravelly loam, very gravelly sandy loam, very cobbly sandy loam.	GM	A-1, A-2	5-25	50-60	35-50	30-45	20-35	20-25	NP-5
	25-60	Extremely cobbly loam, very cobbly loam, extremely cobbly sandy loam.	GM	A-1, A-2	40-50	40-55	35-50	25-35	20-30	20-25	NP-5
Malpais (stony sandy loam)	0-3	Stony sandy loam	SM	A-1, A-2	15-20	70-90	65-85	40-55	20-35	15-25	NP-5
	3-25	Very gravelly loam, very cobbly fine sandy loam, very stony sandy loam.	GM	A-1	40-50	30-40	25-35	20-30	10-20	20-30	NP-5
	25-60	Very stony loam, very cobbly fine sandy loam, extremely cobbly sandy loam.	GM	A-1, A-2	40-50	45-55	35-50	25-45	20-30	20-30	NP-5

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
755*:											
Malpais----------	0-3	Gravelly loamy sand.	SM	A-1	0-10	70-85	60-75	35-50	15-25	15-25	NP-5
	3-25	Very gravelly loam, very gravelly sandy loam, very cobbly sandy loam.	GM	A-1, A-2	5-25	50-60	35-50	30-45	20-35	20-25	NP-5
	25-60	Extremely cobbly loam, very cobbly loam, extremely cobbly sandy loam.	GM	A-1, A-2	40-50	40-55	35-50	25-35	20-30	20-25	NP-5
Yerington--------	0-8	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-30	---	NP
	8-60	Stratified loamy coarse sand to very fine sandy loam.	SM	A-2	0-5	80-100	75-100	50-75	15-25	---	NP
761, 762, 763, 764-------------- Yerington	0-8	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-30	---	NP
	8-60	Stratified loamy coarse sand to very fine sandy loam.	SM	A-2	0-5	80-100	75-100	50-75	15-25	---	NP
765, 766, 767---- Yerington	0-8	Gravelly sandy loam.	SM	A-1, A-2	0-5	70-85	60-75	35-60	20-35	---	NP
	8-60	Stratified loamy coarse sand to very fine sandy loam.	SM	A-2	0-5	80-100	75-100	50-75	15-25	---	NP
771*:											
Biddleman------- (gravelly sandy loam)	0-3	Gravelly sandy loam.	SM	A-1, A-2	5-10	70-80	60-70	40-55	20-35	---	NP
	3-9	Gravelly clay loam, gravelly loam, gravelly sandy clay loam.	SC, GC	A-2, A-6	0-5	60-75	55-65	40-55	30-45	30-35	10-15
	9-60	Sand and gravel	GP-GM, GP	A-1	5-15	10-30	10-20	5-10	0-10	---	NP
Biddleman------- (very stony sandy loam)	0-3	Very stony sandy loam.	SM	A-1, A-2	15-30	70-80	60-70	40-55	20-35	---	NP
	3-9	Gravelly clay loam, gravelly loam, gravelly sandy clay loam.	SC, GC	A-2, A-6	0-5	60-75	55-65	40-55	30-45	30-35	10-15
	9-60	Sand and gravel	GP, GP-GM	A-1	5-15	10-30	10-20	5-10	0-10	---	NP
781-------------- Celeton	0-2	Very cobbly sandy loam.	GM, SM	A-1, A-2	35-45	45-70	40-70	30-50	15-35	40-50	NP-5
	2-9	Gravelly sandy loam, gravelly loam, loam.	SM, ML, MH	A-5	0-5	75-95	65-95	50-85	35-65	40-60	NP-5
	9-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
782*:											
Weena-----------	0-7	Silt loam--------	CL-ML, CL	A-6, A-4	0-5	85-100	80-100	70-90	55-75	20-35	5-15
	7-17	Weathered bedrock	---	---	---	---	---	---	---	---	---
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
782*:											
Malpais---------	0-10	Cobbly sandy loam	SM	A-1, A-2	15-20	70-90	65-85	40-55	20-35	15-25	NP-5
	10-25	Very gravelly loam, very cobbly fine sandy loam, very stony sandy loam.	GM	A-1	40-50	30-40	25-35	20-30	10-20	20-30	NP-5
	25-60	Very stony loam, very cobbly fine sandy loam, extremely cobbly sandy loam.	GM	A-1, A-2	40-50	45-55	35-50	25-45	20-30	20-30	NP-5
791*:											
Plex------------	0-4	Gravelly loam----	SM	A-2, A-4	0-10	65-80	55-75	40-60	30-50	20-25	NP-5
	4-12	Very gravelly sandy clay loam, very gravelly sandy loam.	GM-GC, GC	A-2, A-1	0-5	50-60	40-50	30-45	15-25	15-25	5-15
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---
Duco------------	0-4	Extremely stony loam.	SM-SC, GM-GC	A-2, A-4	35-55	55-80	50-75	35-60	25-50	20-30	5-10
	4-19	Very gravelly clay loam, extremely stony clay loam, very cobbly sandy clay loam.	GC	A-2	15-55	35-60	30-55	20-35	15-30	35-40	15-20
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
792*:											
Pirouette-------	0-4	Very stony very fine sandy loam.	SM, SM-SC, GM, GM-GC	A-4	35-50	65-80	45-75	55-70	35-50	20-30	NP-10
	4-14	Very cobbly clay loam.	SC, CL, GC	A-6, A-7	30-40	55-75	50-65	40-60	35-55	35-45	15-20
	14-23	Indurated--------	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Dsobb-----------	0-4	Very stony very fine sandy loam.	SM, SM-SC, GM, GM-GC	A-1, A-2, A-4	30-50	60-80	50-70	45-65	15-40	20-30	NP-10
	4-11	Very cobbly very fine sandy loam, very cobbly fine sandy loam, extremely cobbly loam.	GP-GM, GM, GM-GC	A-1, A-2	45-55	25-60	20-50	15-35	5-20	20-30	NP-10
	11-12	Indurated--------	---	---	---	---	---	---	---	---	---
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
793-------------- Pirouette	0-4	Extremely stony fine sandy loam.	SM, SM-SC	A-2	50-60	65-80	65-75	55-70	25-35	20-30	NP-10
	4-18	Very cobbly clay loam.	SC, CL, GC	A-6, A-7	30-40	55-75	50-65	40-60	35-55	35-45	15-20
	18-23	Indurated--------	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
802*:											
Loomer----------	0-4	Extremely cobbly loam.	GM-GC, GC	A-2	40-55	45-55	35-45	30-40	20-35	25-35	5-15
	4-15	Extremely cobbly clay, extremely gravelly clay, extremely cobbly clay loam.	GC	A-2	30-55	30-45	20-35	15-30	15-25	40-55	20-35
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Zephan----------	0-2	Extremely cobbly loam.	GM	A-1, A-2	40-45	30-60	20-50	15-40	10-30	20-25	NP-5
	2-37	Very cobbly clay, very cobbly sandy clay, very cobbly clay loam.	GC, CH	A-7	30-45	65-80	60-70	50-70	40-65	50-60	25-35
	37	Weathered bedrock	---	---	---	---	---	---	---	---	---
Olac------------	0-4	Extremely stony loam.	GC	A-2	25-55	40-60	35-55	25-40	20-30	25-30	10-15
	4-14	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-20	30-45	20-35	15-30	10-25	30-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
803*:											
Loomer---------- (15 to 30 percent slopes)	0-4	Extremely cobbly loam.	GM-GC, GC	A-2	40-55	45-55	35-45	30-40	20-35	25-35	5-15
	4-15	Extremely cobbly clay, extremely gravelly clay, extremely cobbly clay loam.	GC	A-2	30-55	30-45	20-35	15-30	15-25	40-55	20-35
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loomer---------- (30 to 50 percent slopes)	0-4	Extremely cobbly loam.	GM-GC, GC	A-2	40-55	45-55	35-45	30-40	20-35	25-35	5-15
	4-15	Extremely cobbly clay, extremely gravelly clay, extremely cobbly clay loam.	GC	A-2	30-55	30-45	20-35	15-30	15-25	40-55	20-35
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
811*:											
Trid------------ (30 to 50 percent slopes)	0-4	Sandy loam-------	SM	A-1, A-2	0-5	90-100	85-100	45-55	20-30	---	NP
	4-23	Very gravelly clay loam, very gravelly sandy clay loam, extremely gravelly clay loam.	SC, SP-SC, GC, GP-GC	A-2	5-15	50-70	15-40	10-35	5-30	35-40	15-20
	23-48	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
811*:											
Trid------------ (4 to 15 percent slopes)	0-4	Sand------------	SP-SM	A-1	0-5	90-100	85-100	35-50	5-10	---	NP
	4-23	Very gravelly clay loam, very gravelly sandy clay loam, extremely gravelly clay loam.	SC, SP-SC, GC, GP-GC	A-2	5-15	50-70	15-40	10-35	5-30	35-40	15-20
	23-48	Weathered bedrock	---	---	---	---	---	---	---	---	---
Drit------------	0-9	Coarse sandy loam	SM	A-1, A-2	0	90-95	75-85	30-40	20-30	15-25	NP-5
	9-25	Gravelly coarse sandy loam.	SM	A-1	0-5	75-85	55-75	25-35	15-25	15-25	NP-5
	25-60	Very gravelly coarse sandy loam, extremely gravelly coarse sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-30	45-70	20-45	10-30	10-20	15-30	NP-10
812*:											
Trid------------	0-4	Very stony fine sandy loam.	SC	A-2	25-35	85-95	35-50	20-40	10-30	25-35	10-20
	4-23	Extremely gravelly clay loam, extremely gravelly sandy clay loam, very gravelly clay loam.	SC, SP-SC	A-2	0-5	60-80	15-40	10-35	5-30	35-40	15-20
	23	Weathered bedrock	---	---	---	---	---	---	---	---	---
Roloc-----------	0-8	Gravelly sandy loam.	SM	A-1	0-5	80-90	55-80	30-40	10-20	---	NP
	8-17	Very gravelly coarse sandy loam.	SM-SC	A-2	0-5	70-80	35-50	20-35	15-30	20-30	5-10
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
Drit------------	0-9	Coarse sandy loam	SM	A-1, A-2	0	90-95	75-85	30-40	20-30	15-25	NP-5
	9-25	Gravelly coarse sandy loam.	SM	A-1	0-5	75-85	55-75	25-35	15-25	15-25	NP-5
	25-60	Very gravelly coarse sandy loam, extremely gravelly coarse sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-30	45-70	20-45	10-30	10-20	15-30	NP-10
821*. Badland											
822*. Dumps											
823*. Gypsum land											
824*, 825*. Pits											
826*. Playas											
827*. Slickens											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
831*:											
Ister-----------	0-17	Extremely stony sandy loam.	GM, SM	A-1, A-2	30-40	45-70	40-65	30-45	15-35	20-30	NP-5
	17-38	Very stony sandy clay loam, very stony clay loam.	GC, SC	A-2, A-6, A-7	35-45	60-85	55-80	40-60	30-50	35-45	15-20
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hyloc-----------	0-5	Very cobbly sandy loam.	SM-SC	A-2	45-55	70-80	50-60	35-45	15-25	25-30	5-10
	5-18	Gravelly clay, clay.	CH	A-7	5-15	85-95	80-95	70-90	55-65	50-60	25-35
	18-24	Weathered bedrock	---	---	---	---	---	---	---	---	---
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Lunder----------	0-7	Very cobbly loam	CL-ML, CL	A-4, A-6	40-65	75-90	70-85	70-85	50-65	25-35	5-15
	7-16	Cobbly clay-------	CH	A-7	15-30	70-85	65-80	60-75	55-70	55-70	30-40
	16-31	Indurated---------	---	---	---	---	---	---	---	---	---
	31-60	Extremely cobbly sandy loam.	GP-GM, GM	A-1	45-65	40-55	30-45	20-35	5-20	---	NP
841*:											
Bradshaw--------	0-15	Extremely stony loam.	GM-GC	A-2	45-60	40-55	35-50	30-45	20-35	20-30	5-10
	15-43	Extremely cobbly fine sandy loam, extremely cobbly loam.	GM	A-1	55-70	40-50	35-45	20-35	10-30	15-25	NP-5
	43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hartig----------	0-14	Very gravelly sandy loam.	GM	A-1, A-2	5-25	40-55	35-50	25-40	15-30	15-25	NP-5
	14-60	Very gravelly loam, very gravelly sandy loam.	GM	A-1	5-25	35-50	30-45	20-35	15-25	15-25	NP-5
	60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
851*:											
Tenpin----------	0-7	Very gravelly loam.	GM-GC, GM	A-1, A-2	5-15	45-60	35-50	30-45	20-35	20-30	NP-10
	7-33	Extremely gravelly clay, extremely cobbly sandy clay, extremely cobbly clay.	GC	A-2	30-45	30-45	15-25	10-25	10-20	45-55	20-25
	33-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM-GC, GP-GC, GC	A-2	30-55	30-45	20-30	10-20	5-15	25-35	5-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
851*:											
Shree------------	0-10	Very gravelly loam.	GM-GC, GC	A-2	0-5	40-60	35-50	30-50	20-35	25-35	5-15
	10-26	Very gravelly sandy clay loam, very gravelly clay loam, extremely gravelly sandy clay loam.	GC	A-2	5-10	45-55	25-40	20-30	10-25	35-45	15-20
	26-60	Very gravelly sandy loam, extremely gravelly loam, very gravelly fine sandy loam.	GC, GM-GC	A-2	0-30	45-55	25-40	15-25	10-15	20-35	5-15
861--------------- Shree	0-10	Very gravelly loam.	GM-GC, GC	A-2	0-5	40-60	35-50	30-50	20-35	25-35	5-15
	10-26	Very gravelly sandy clay loam, very gravelly clay loam, extremely gravelly sandy clay loam.	GC	A-2	5-10	45-55	25-40	20-30	10-25	35-45	15-20
	26-60	Very gravelly sandy loam, extremely gravelly loam, very gravelly fine sandy loam.	GC, GM-GC	A-2	0-30	45-55	25-40	15-25	10-15	20-35	5-15
871*:											
Nall-------------	0-8	Gravelly sandy loam.	SM	A-1, A-2	0-1	90-100	50-75	40-55	15-30	---	NP
	8-20	Weathered bedrock	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Luppino----------	0-7	Gravelly sandy loam.	SM	A-1	0-5	75-90	55-65	35-45	15-25	---	NP
	7-12	Sandy clay loam, sandy loam, gravelly sandy clay loam.	SC	A-2, A-6	0	80-90	65-85	55-75	30-40	30-40	15-25
	12-23	Weathered bedrock	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hotsprings-------	0-4	Loamy sand--------	SM	A-2, A-1	0	95-100	85-95	45-70	15-30	---	NP
	4-60	Gravelly loamy sand, gravelly loamy coarse sand.	SM	A-1	0-10	80-95	55-70	35-50	10-25	---	NP
881*:											
Ravenell Variant	0-7	Gravelly sandy loam.	SM, SM-SC	A-2, A-4	0-5	80-95	65-75	45-60	30-40	25-35	5-10
	7-15	Gravelly clay, gravelly clay loam.	CL, CH, SC	A-7	0-5	75-90	50-75	50-70	45-65	45-55	20-30
	15	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
881*:											
Devils Variant--	0-10	Gravelly loam----	SM-SC, SM, ML, CL-ML	A-4	0-10	70-95	60-75	50-65	40-55	20-30	NP-10
	10-30	Gravelly sandy clay loam, gravelly clay loam.	SC	A-2, A-6	0	85-100	55-70	40-55	30-45	35-40	15-20
	30	Weathered bedrock	---	---	---	---	---	---	---	---	---
891*, 892*:											
Berit-----------	0-2	Very gravelly loamy sand.	SP-SM, SM	A-1	0-5	60-75	40-50	20-35	5-15	---	NP
	2-5	Very gravelly sandy clay loam, extremely gravelly sandy clay loam.	GC	A-2	0-10	35-50	25-35	20-35	15-25	35-40	15-20
	5-60	Weathered bedrock	---	---	---	---	---	---	---	---	---
Shoken----------	0-5	Very gravelly coarse sandy loam.	GM	A-1	0-5	40-60	35-50	20-35	10-20	---	NP
	5-26	Weathered bedrock	---	---	---	---	---	---	---	---	---
	26-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
893*:											
Berit-----------	0-3	Very gravelly loamy sand.	SP-SM, SM	A-1	0-5	60-75	40-50	20-35	5-15	---	NP
	3-7	Very gravelly sandy clay loam, extremely gravelly sandy clay loam.	GC	A-2	0-10	35-50	25-35	20-35	15-25	35-40	15-20
	7-60	Weathered bedrock	---	---	---	---	---	---	---	---	---
Saralegui-------	0-5	Loamy sand-------	SP-SM, SM	A-1, A-2, A-3	0	95-100	85-95	45-55	5-15	---	NP
	5-32	Sandy loam, coarse sandy loam, gravelly sandy loam.	SM-SC	A-2	0-5	90-100	65-90	50-60	20-30	25-30	5-10
	32-60	Gravelly sandy loam, loamy sand, sand.	SM	A-1, A-2	0-5	95-100	65-95	45-55	10-20	---	NP
911*:											
Fulstone Variant	0-5	Extremely cobbly loam.	GM, SM, GM-GC, SM-SC	A-4	50-65	65-80	60-75	55-70	35-50	15-25	NP-10
	5-25	Clay, clay loam, gravelly clay.	CL, CH	A-7	5-10	80-95	75-90	65-90	50-75	40-55	15-30
	25	Cemented---------	---	---	---	---	---	---	---	---	---
Devils----------	0-7	Very cobbly loam	SM-SC, GM-GC	A-4	30-40	60-75	55-70	50-65	35-50	20-25	5-10
	7-22	Very gravelly clay loam.	GC	A-2, A-6, A-7	15-30	40-65	35-60	30-55	20-45	35-45	15-20
	22-30	Weathered bedrock	---	---	---	---	---	---	---	---	---
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
911*:											
Glean	0-24	Cobbly loam	GM, SM	A-2, A-4	15-25	65-80	60-75	40-65	25-45	20-30	NP-5
	24-51	Very cobbly loam, very cobbly sandy loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-35	20-30	NP-5
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
921*:											
Glean	0-14	Gravelly loam	SM, GM	A-2, A-4	0-10	55-80	50-75	40-60	25-40	20-30	NP-5
	14-60	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-35	20-30	NP-5
	60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Devils	0-7	Very cobbly loam	SM-SC, GM-GC	A-4	30-40	60-75	55-70	50-65	35-50	20-25	5-10
	7-22	Very gravelly clay loam.	GC	A-2, A-6, A-7	15-30	40-65	35-60	30-55	20-45	35-45	15-20
	22-30	Weathered bedrock	---	---	---	---	---	---	---	---	---
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
922*:											
Glean	0-14	Gravelly loam	SM, GM	A-2, A-4	0-10	55-80	50-75	40-60	25-40	20-30	NP-5
	14-51	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-35	20-30	NP-5
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Devils	0-7	Very cobbly loam	SM-SC, GM-GC	A-4	30-40	60-75	55-70	50-65	35-50	20-25	5-10
	7-22	Very gravelly clay loam.	GC	A-2, A-6, A-7	15-30	40-65	35-60	30-55	20-45	35-45	15-20
	22-30	Weathered bedrock	---	---	---	---	---	---	---	---	---
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
923*:											
Glean	0-14	Very gravelly sandy loam.	GM	A-1, A-2	0-10	30-55	25-50	20-40	10-30	20-30	NP-5
	14-51	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-35	20-30	NP-5
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ticino	0-12	Extremely gravelly sandy loam.	GM, GP-GM	A-1	0-5	20-35	15-30	10-25	5-15	15-25	NP-5
	12-28	Gravelly loam, gravelly clay loam, gravelly sandy clay loam.	SC	A-6	0-15	80-95	60-80	50-70	35-50	25-40	10-20
	28	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
923*: Hartig	0-14	Very gravelly sandy loam.	GM	A-1, A-2	5-25	40-55	35-50	25-40	15-30	15-25	NP-5
	14-60	Very gravelly loam, very gravelly sandy loam.	GM	A-1	5-25	35-50	30-45	20-35	15-25	15-25	NP-5
	60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
932*: Shoken	0-5	Very gravelly coarse sandy loam.	GM	A-1	0-5	40-60	35-50	20-35	10-20	---	NP
	5-25	Weathered bedrock	---	---	---	---	---	---	---	---	---
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
951*: Koontz	0-2	Very gravelly sandy loam.	GM, SM	A-1	0-15	50-65	35-50	25-35	10-15	15-25	NP-5
	2-17	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	50-65	35-50	30-45	25-40	30-40	10-20
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
Ravenell	0-3	Very gravelly loam.	GM-GC	A-2	15-25	40-60	35-55	30-45	20-35	25-30	5-10
	3-7	Very gravelly clay, very gravelly sandy clay.	GC	A-7, A-2	15-25	40-60	35-55	30-50	20-45	40-50	15-20
	7-11	Weathered bedrock	---	---	---	---	---	---	---	---	---
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Haar	0-6	Gravelly loam	SM-SC, CL-ML, GM-GC	A-4	0-5	60-80	55-75	50-60	40-55	20-30	5-10
	6	Weathered bedrock	---	---	---	---	---	---	---	---	---
961: Luppino	0-7	Gravelly sandy loam.	SM	A-1	0-5	75-90	55-65	35-45	15-25	---	NP
	7-12	Sandy clay loam, gravelly sandy clay loam.	SC	A-2, A-6	0	80-90	65-85	55-75	30-40	30-40	15-25
	12-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
	21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
971*: Minneha	0-5	Extremely stony sandy loam.	SM	A-1	40-50	70-80	45-55	25-35	15-25	15-25	NP-5
	5-18	Very gravelly sandy loam.	SM	A-1	5-10	80-90	30-55	20-30	10-15	15-25	NP-5
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
971*:											
Drit	0-9	Extremely stony sandy loam.	SM	A-1	20-45	60-75	45-55	25-40	10-25	15-25	NP-5
	9-60	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, extremely gravel.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-50	45-75	35-55	10-30	10-25	15-30	NP-10
Rock outcrop.											
972*:											
Minneha	0-5	Extremely stony sandy loam.	SM	A-1	40-50	70-80	45-55	25-35	15-25	15-25	NP-5
	5-18	Very gravelly sandy loam.	SM	A-1	5-10	80-90	30-55	20-30	10-15	15-25	NP-5
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Berit	0-3	Extremely stony loam.	GM-GC	A-2	35-50	30-45	20-35	15-30	10-25	25-30	5-10
	3-7	Extremely cobbly clay loam, extremely gravelly sandy clay loam, very gravelly sandy clay loam.	GC	A-2	25-45	30-55	20-45	15-40	10-30	35-45	15-20
	7	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wile	0-7	Gravelly sandy loam.	SM, GM	A-2, A-4, A-1	5-10	60-85	50-75	30-50	20-40	20-30	NP-5
	7-18	Gravelly clay, gravelly clay loam.	SC, GC	A-7	0-5	70-90	50-70	45-55	40-50	40-50	20-30
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
981 Havenell	0-3	Very gravelly loam.	GM-GC	A-2	15-25	40-60	35-55	30-45	20-35	25-30	5-10
	3-7	Very gravelly clay, very gravelly sandy clay.	GC	A-7, A-2	15-25	40-60	35-55	30-50	20-45	40-50	15-20
	7-11	Weathered bedrock	---	---	---	---	---	---	---	---	---
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
982*:											
Havenell	0-3	Very gravelly loam.	GM-GC	A-2	15-25	40-60	35-55	30-45	20-35	25-30	5-10
	3-7	Very gravelly clay, very gravelly sandy clay.	GC	A-7, A-2	15-25	40-60	35-55	30-50	20-45	40-50	15-20
	7-11	Weathered bedrock	---	---	---	---	---	---	---	---	---
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Haar	0-6	Gravelly loam	SM-SC, CL-ML, GM-GC	A-4	0-5	60-80	55-75	50-60	40-55	20-30	5-10
	6	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
991*: Roloc	0-9	Very gravelly sandy loam.	SM	A-1	5-15	80-90	40-55	25-35	10-20	---	NP
	9-17	Very gravelly coarse sandy loam.	SM-SC	A-2	0-5	70-80	35-50	20-35	15-30	20-30	5-10
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
Drit	0-20	Stony sandy loam	SM	A-1, A-2	5-15	80-90	70-80	40-60	20-35	15-25	NP-5
	20-60	Very cobbly coarse sandy loam, very gravelly coarse sandy loam, extremely gravelly coarse sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-50	45-75	35-55	10-30	10-25	15-30	NP-10
1001 Rowel	0-6	Very cobbly sandy loam.	GM	A-1	35-50	35-50	25-40	15-30	10-20	15-25	NP-5
	6-14	Very cobbly clay, extremely cobbly clay.	GC, GM	A-2	50-65	40-55	30-45	25-45	20-35	45-65	20-30
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1002*: Rowel	0-6	Very stony sandy loam.	GM	A-1	35-50	35-50	25-40	15-30	10-20	15-25	NP-5
	6-14	Very cobbly clay, extremely cobbly clay.	GC, GM	A-2	50-65	40-55	30-45	25-45	20-35	45-65	20-30
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
1011 Smedley	0-2	Very gravelly sandy loam.	SM, GM	A-1	0-15	50-75	35-50	25-45	15-25	---	NP
	2-18	Gravelly clay loam, gravelly clay, cobbly clay loam.	CL	A-7	5-15	70-85	65-80	60-75	55-70	40-50	15-25
	18-43	Cemented---------	---	---	---	---	---	---	---	---	---
	43-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	15-25	30-45	25-35	15-25	5-15	---	NP
1012 Smedley	0-2	Stony sandy loam	SM	A-1, A-2	10-25	65-80	60-75	35-50	20-30	---	NP
	2-18	Gravelly clay loam, gravelly clay, cobbly clay loam.	CL	A-7	5-15	70-85	65-80	60-75	55-70	40-50	15-25
	18-43	Cemented---------	---	---	---	---	---	---	---	---	---
	43-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	15-25	30-45	25-35	15-25	5-15	---	NP
1013*: Smedley (2 to 4 percent slopes)	0-2	Very gravelly sandy loam.	SM, GM	A-1	0-15	50-75	35-50	25-45	15-25	---	NP
	2-18	Gravelly clay loam, gravelly clay, cobbly clay loam.	CL	A-7	5-15	70-85	65-80	60-75	55-70	40-50	15-25
	18-43	Cemented---------	---	---	---	---	---	---	---	---	---
	43-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	15-25	30-45	25-35	15-25	5-15	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1013*:											
Smedley---------- (4 to 15 percent slopes)	0-2	Stony sandy loam	SM	A-1, A-2	10-25	65-80	60-75	35-50	20-30	---	NP
	2-18	Gravelly clay loam, gravelly clay, cobbly clay loam.	CL	A-7	5-15	70-85	65-80	60-75	55-70	40-50	15-25
	18-43	Cemented----------	---	---	---	---	---	---	---	---	---
	43-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	15-25	30-45	25-35	15-25	5-15	---	NP
1014*:											
Smedley---------- (15 to 30 percent slopes)	0-2	Cobbly sandy loam	SM	A-1, A-2	10-20	65-80	60-75	35-50	20-30	---	NP
	2-18	Gravelly clay loam, gravelly clay, cobbly clay loam.	CL	A-7	5-15	70-85	65-80	60-75	55-70	40-50	15-25
	18-43	Cemented----------	---	---	---	---	---	---	---	---	---
	43-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	15-25	30-45	25-35	15-25	5-15	---	NP
Smedley---------- (4 to 15 percent slopes)	0-2	Very gravelly sandy loam.	SM, GM	A-1	0-15	50-75	35-50	25-45	15-25	---	NP
	2-18	Gravelly clay loam, gravelly clay, cobbly clay loam.	CL	A-7	5-15	70-85	65-80	60-75	55-70	40-50	15-25
	18-43	Cemented----------	---	---	---	---	---	---	---	---	---
	43-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	15-25	30-45	25-35	15-25	5-15	---	NP
1021-------------- Springmeyer	0-10	Sandy loam--------	SM	A-2, A-4	0-5	90-100	90-100	60-70	30-40	15-25	NP-5
	10-34	Gravelly sandy clay loam, sandy clay loam, clay loam.	SC, CL	A-2, A-6, A-7	0-5	80-95	65-95	60-80	30-60	35-45	15-20
	34-60	Stratified very gravelly sandy clay loam to loamy sand.	SC	A-2	0-5	70-85	55-70	30-45	20-30	25-35	10-15
1031*:											
Burnborough------	0-10	Very stony loam	GC, GM-GC	A-2	30-40	60-65	45-55	35-45	25-35	20-35	5-15
	10-60	Very gravelly loam, very gravelly clay loam.	GC, SC	A-2	15-25	55-65	35-60	20-35	15-30	25-40	10-20
Glean------------	0-14	Stony loam--------	GM, SM	A-2, A-4	15-25	65-80	60-75	40-65	25-45	20-30	NP-5
	14-51	Very cobbly loam, very cobbly sandy loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-35	20-30	NP-5
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1041*:											
Whichman--------	0-15	Cobbly loamy sand	SM	A-1, A-2	20-30	75-90	70-85	35-55	15-30	---	NP
	15-33	Very stony sandy loam, very cobbly sandy loam, extremely stony sandy loam.	SM	A-1	50-65	60-90	55-85	30-50	10-25	20-25	NP-5
	33-56	Very stony sandy loam, very cobbly sandy loam, extremely cobbly loamy sand.	SP-SM, SM	A-1	50-65	60-90	55-85	30-50	5-25	---	NP
	56	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Inter-----------	0-17	Very stony sandy loam.	GM, SM	A-2, A-4	20-30	60-80	55-75	35-55	25-40	20-30	NP-5
	17-38	Very stony sandy clay loam, very stony clay loam.	GC, SC	A-2, A-6, A-7	35-45	60-85	55-80	40-60	30-50	35-45	15-20
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
1051-------------- Zyzzi	0-2	Very gravelly sandy loam.	SM	A-1	0-5	75-90	35-50	20-35	10-20	---	NP
	2-6	Extremely gravelly sandy clay loam, very gravelly sandy clay loam.	SC	A-2	0-5	60-75	20-35	15-30	10-20	35-40	10-15
	6-40	Weathered bedrock	---	---	---	---	---	---	---	---	---
1072-------------- Hawsley	0-8	Sand-------------	SM, SP-SM	A-2, A-3	0	100	90-100	75-90	5-25	---	NP
	8-60	Sand, fine sand	SM, SP-SM	A-2, A-3	0	100	100	75-90	5-25	---	NP
1073*:											
Hawsley---------	0-8	Sand-------------	SM, SP-SM	A-2, A-3	0	100	90-100	75-90	5-25	---	NP
	8-60	Sand, fine sand	SM, SP-SM	A-2, A-3	0	100	100	75-90	5-25	---	NP
Gamgee----------	0-4	Stony sandy loam	SM	A-2	15-20	80-90	65-80	50-65	25-35	---	NP
	4-17	Loam, clay loam	CL, SC	A-6	0-5	80-100	80-100	60-85	45-70	25-30	10-15
	17-60	Loam, sandy loam	ML, SM, CL-ML, SM-SC	A-4	0-5	80-95	75-90	60-75	35-60	15-25	NP-10
1074-------------- Hawsley	0-8	Loamy fine sand	SM	A-2, A-4	0	100	100	75-90	30-40	---	NP
	8-50	Stratified fine sand to coarse sand.	SM, SP-SM	A-2, A-3	0	85-100	75-100	55-70	5-25	---	NP
	50-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-90	25-35	5-15
1075*:											
Hawsley---------	0-8	Loamy fine sand	SM	A-2, A-4	0	100	100	75-90	30-40	---	NP
	8-50	Stratified fine sand to coarse sand.	SM, SP-SM	A-2, A-3	0	85-100	75-100	55-70	5-25	---	NP
	50-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-90	25-35	5-15
Playas.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1081------------- Stucky	0-6	Extremely cobbly sandy loam.	GM	A-1, A-2	35-45	40-50	30-40	25-35	15-30	15-25	NP-5
	6-20	Extremely cobbly sandy clay loam, very cobbly sandy clay loam.	GC	A-2	35-75	45-60	35-50	30-45	15-30	30-40	15-20
	20-60	Stratified extremely cobbly sandy loam to very stony clay loam.	GC, GM-GC	A-2	35-50	45-60	35-50	25-45	15-35	20-35	5-15
1082*:											
Stucky---------- (8 to 15 percent slopes)	0-6	Very cobbly loam	GM	A-2, A-4	25-40	50-70	45-65	35-55	25-45	15-25	NP-5
	6-20	Extremely cobbly sandy clay loam, very cobbly sandy clay loam.	GC	A-2	35-75	45-60	35-50	30-45	15-30	30-40	15-20
	20-60	Stratified extremely cobbly sandy loam to very stony clay loam.	GC, GM-GC	A-2	35-50	45-60	35-50	25-45	15-35	20-35	5-15
Stucky---------- (15 to 30 percent slopes)	0-6	Very cobbly loam	GM	A-2, A-4	25-40	50-70	45-65	35-55	25-45	15-25	NP-5
	6-20	Extremely cobbly sandy clay loam, very cobbly sandy clay loam.	GC	A-2	35-75	45-60	35-50	30-45	15-30	30-40	15-20
	20-60	Stratified extremely cobbly sandy loam to very stony clay loam.	GC, GM-GC	A-2	35-50	45-60	35-50	25-45	15-35	20-35	5-15
1083*:											
Stucky----------	0-6	Extremely cobbly loam.	GM	A-1, A-2	35-45	40-50	30-40	25-35	15-30	15-25	NP-5
	6-20	Extremely cobbly sandy clay loam, very cobbly sandy clay loam.	GC	A-2	35-75	45-60	35-50	30-45	15-30	30-40	15-20
	20-60	Stratified extremely cobbly sandy loam to very stony clay loam.	GC, GM-GC	A-2	35-50	45-60	35-50	25-45	15-35	20-35	5-15
Hunewill--------	0-3	Stony loam-------	CL-ML	A-4	10-25	85-100	60-95	75-90	60-75	20-30	5-10
	3-13	Very gravelly clay loam, very gravelly sandy clay loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	13-18	Very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-25	45-55	40-50	25-45	15-35	15-25	NP-5
	18-60	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1083*:											
Veta------------	0-6	Very gravelly sandy loam.	GM	A-1	0-25	40-55	35-50	20-35	10-20	---	NP
	6-18	Extremely gravelly loam, very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	10-30	40-55	30-50	20-40	10-30	---	NP
	18-60	Stratified extremely gravelly loamy sand to very gravelly loam.	GP-GM, GM	A-1	10-25	30-55	20-50	15-35	5-20	---	NP
1091*:											
Glean Variant---	0-11	Gravelly loamy sand.	SP-SM, SM	A-1	0-5	75-90	50-65	25-40	5-15	---	NP
	11-31	Gravelly sand, gravelly loamy sand.	SP, SP-SM	A-1	0-5	75-90	50-65	20-35	0-10	---	NP
	31	Weathered bedrock	---	---	---	---	---	---	---	---	---
Hartig Variant--	0-2	Extremely gravelly coarse sand.	GP	A-1	30-45	25-40	15-30	10-25	0-5	---	NP
	2-16	Extremely gravelly sandy loam, very gravelly sandy loam.	GM, GP-GM	A-1	15-30	30-45	15-40	10-30	5-15	---	NP
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rubble land.											
1103*:											
Mirkwood--------	0-7	Very cobbly fine sandy loam.	GM, SM	A-1, A-2	30-45	50-80	45-70	35-50	20-30	15-25	NP-5
	7-14	Very gravelly loam, very gravelly clay loam.	GC, SC	A-2	5-15	60-75	40-50	30-50	25-35	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nemico----------	0-6	Very stony sandy loam.	SM	A-1, A-2	10-25	85-95	65-85	45-60	15-35	---	NP
	6-18	Gravelly clay, gravelly clay loam.	SC, CL, CH	A-7	0-5	70-80	55-75	50-65	40-55	45-60	20-30
	18-21	Indurated--------	---	---	---	---	---	---	---	---	---
	21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1110*:											
Surgem----------	0-6	Extremely stony sandy loam.	GM	A-1	40-50	40-50	30-40	20-30	10-20	20-25	NP-5
	6-22	Very cobbly clay, extremely cobbly sandy clay, extremely gravelly clay.	GC	A-2	25-60	35-60	20-45	15-40	10-35	40-55	20-30
	22-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
1110*:											
Olac-------------	0-4	Very stony loam	GC	A-2	25-55	40-60	35-55	25-40	20-30	25-30	10-15
	4-14	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-20	30-45	20-35	15-30	10-25	30-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cagle------------	0-2	Very stony loam	GC, SC	A-6	30-50	55-75	50-70	45-60	35-45	30-35	10-15
	2-30	Gravelly clay, gravelly clay loam, gravelly silty clay.	CL, CH, GC	A-7	0-5	60-85	50-75	45-75	40-65	45-55	20-30
	30	Weathered bedrock	---	---	---	---	---	---	---	---	---
1121*:											
Duco-------------	0-4	Very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	35-55	55-80	50-75	35-60	25-50	20-30	5-10
	4-19	Very gravelly clay loam, extremely stony clay loam, very cobbly sandy clay loam.	GC	A-2	15-55	35-60	30-55	20-35	15-30	35-40	15-20
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Noorac-----------	0-12	Very stony loam	GC	A-2	20-30	35-55	30-50	30-45	20-30	30-35	10-15
	12-45	Very gravelly clay loam, very gravelly loam.	GC	A-2	5-25	45-55	40-50	30-45	25-35	35-40	15-20
	45-60	Very gravelly loam, very gravelly fine sandy loam, very gravelly clay loam.	GC	A-2, A-6	10-25	35-55	30-50	25-45	20-40	30-35	10-15
1131------------- Gamgee	0-4	Gravelly sand----	SP-SM	A-1	0-5	60-80	50-75	30-40	5-10	---	NP
	4-23	Loam, clay loam	CL, SC	A-6	0-5	90-100	80-95	60-75	45-60	35-40	15-20
	23-60	Stratified sandy loam to clay loam.	CL, SC	A-6	0-5	90-100	80-95	60-75	45-60	25-35	10-15
1141*:											
Old Camp---------	0-4	Extremely stony loam.	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	4-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Mirkwood---------	0-4	Extremely stony loam.	GM-GC	A-2	40-50	40-60	25-40	20-35	15-25	20-25	5-10
	4-14	Very gravelly loam, very gravelly clay loam.	GC, SC	A-2	5-15	60-75	40-55	30-50	25-35	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1141*:											
Nemico----------	0-6	Very stony sandy loam.	SM	A-1, A-2	10-25	85-95	65-85	45-60	15-35	---	NP
	6-18	Gravelly clay, gravelly clay loam.	SC, CL, CH	A-7	0-5	70-80	55-75	50-65	40-55	45-60	20-30
	18-21	Indurated--------	---	---	---	---	---	---	---	---	---
	21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1142*:											
Old Camp--------	0-4	Very stony loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	4-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Holbrook Variant	0-9	Very stony fine sandy loam.	GM	A-1	25-30	35-45	25-35	20-30	10-20	---	NP
	9-35	Very gravelly fine sandy loam, very cobbly sandy loam, extremely cobbly sandy loam.	GM	A-1	10-50	30-55	25-50	20-40	10-15	---	NP
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1143*:											
Old Camp--------	0-4	Extremely stony sandy loam.	SM	A-1	25-55	60-70	55-65	35-45	15-25	15-25	NP-5
	4-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Reno Variant----	0-11	Very stony sandy loam.	SM	A-4, A-2	40-50	80-95	75-90	65-80	30-45	---	NP
	11-18	Loam-------------	CL	A-6	0-5	90-100	75-100	65-95	50-75	30-35	10-15
	18-24	Cemented---------	---	---	---	---	---	---	---	---	---
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hyloc-----------	0-3	Gravelly loam----	CL-ML	A-4	0-5	70-85	65-80	55-70	55-65	20-30	5-10
	3-18	Gravelly clay, clay.	CH	A-7	5-15	85-95	80-95	70-90	55-55	50-60	25-35
	18-24	Weathered bedrock	---	---	---	---	---	---	---	---	---
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
101-------------	0-10	2-8	2.0-6.0	0.09-0.12	6.1-7.3	<4	Low-----------	0.28	5	3
Ackley	10-34	18-27	0.6-2.0	0.13-0.16	6.1-7.3	<4	Moderate-----	0.37		
	34-60	8-15	2.0-6.0	0.09-0.12	6.6-9.0	<4	Low-----------	0.32		
102-------------	0-10	2-8	2.0-6.0	0.08-0.12	6.1-7.3	<4	Low-----------	0.15	5	4
Ackley	10-34	18-27	0.6-2.0	0.13-0.16	6.1-7.3	<4	Moderate-----	0.37		
	34-60	8-15	2.0-6.0	0.09-0.12	6.6-9.0	<4	Low-----------	0.32		
103*:										
Ackley----------	0-10	2-8	2.0-6.0	0.09-0.12	6.1-7.3	<4	Low-----------	0.28	5	3
	10-34	18-27	0.6-2.0	0.13-0.16	6.1-7.3	<4	Moderate-----	0.37		
	34-60	8-15	2.0-6.0	0.09-0.12	6.6-9.0	<4	Low-----------	0.32		
Ackley Variant--	0-7	2-8	2.0-6.0	0.09-0.12	7.4-8.4	4-8	Low-----------	0.28	5	3
	7-25	18-26	2.0-6.0	0.13-0.16	7.4-8.4	4-8	Moderate-----	0.37		
	25-60	---	---	---	---	---	-------------	----		
121-------------	0-8	2-5	6.0-20	0.06-0.08	7.9-9.0	4-8	Low-----------	0.20	2	2
Appian	8-18	27-35	0.2-0.6	0.17-0.20	>8.4	4-8	Moderate-----	0.32		
	18-60	0-5	6.0-20	0.04-0.06	7.4-8.4	<2	Low-----------	0.10		
122-------------	0-8	15-20	0.6-2.0	0.14-0.18	7.9-9.0	4-8	Low-----------	0.37	2	5
Appian	8-18	27-35	0.2-0.6	0.17-0.20	>8.4	4-8	Moderate-----	0.32		
	18-60	0-5	6.0-20	0.04-0.06	7.4-8.4	<2	Low-----------	0.10		
123*:										
Appian----------	0-8	2-5	6.0-20	0.06-0.08	7.9-9.0	<4	Low-----------	0.20	2	2
	8-18	27-35	0.2-0.6	0.17-0.20	>8.4	<4	Moderate-----	0.32		
	18-60	0-5	6.0-20	0.04-0.06	7.4-8.4	<2	Low-----------	0.10		
Wabuska---------	0-9	15-22	0.6-2.0	0.16-0.18	>8.4	2-4	Low-----------	0.43	5	5
	9-60	10-18	0.6-2.0	0.10-0.14	>7.8	2-8	Low-----------	0.32		
124*:										
Appian----------	0-8	2-5	6.0-20	0.06-0.08	7.9-9.0	<4	Low-----------	0.20	2	2
	8-18	27-35	0.2-0.6	0.17-0.20	>8.4	<4	Moderate-----	0.32		
	18-60	0-5	6.0-20	0.04-0.06	7.4-8.4	<2	Low-----------	0.10		
Delp------------	0-1	2-5	6.0-20	0.05-0.07	7.9-9.0	<2	Low-----------	0.15	5	1
	1-60	5-15	2.0-6.0	0.09-0.15	>8.4	<4	Low-----------	0.20		
141-------------	0-2	5-12	2.0-6.0	0.09-0.12	7.9-9.0	4-8	Low-----------	0.15	5	3
Bango	2-13	20-30	0.2-0.6	0.15-0.18	7.9-9.0	4-8	Moderate-----	0.37		
	13-60	18-30	0.2-0.6	0.15-0.16	7.9-9.0	4-8	Moderate-----	0.43		
142-------------	0-2	0-5	6.0-20	0.04-0.06	7.4-8.4	4-8	Low-----------	0.10	5	5
Bango	2-13	20-30	0.2-0.6	0.15-0.18	7.9-9.0	4-8	Moderate-----	0.37		
	13-60	18-30	0.2-0.6	0.15-0.16	7.9-9.0	4-8	Moderate-----	0.43		
151-------------	0-3	40-60	<0.06	0.14-0.17	5.6-8.4	<4	High----------	0.24	5	4
Bluewing Variant	3-60	40-60	<0.06	0.14-0.17	6.6-8.4	<4	High----------	0.24		
161-------------	0-3	3-10	>6.0	0.04-0.06	6.6-9.0	<2	Low-----------	0.05	5	4
Bluewing	3-60	3-10	>20	0.04-0.06	6.6-9.0	<4	Low-----------	0.05		
162-------------	0-5	3-10	>6.0	0.04-0.05	7.4-9.0	<2	Low-----------	0.15	5	4
Bluewing	5-60	3-10	>20	0.04-0.06	7.4-9.0	<4	Low-----------	0.10		
171*:										
Cagle-----------	0-2	28-35	0.2-0.6	0.16-0.17	6.1-7.8	<2	Moderate-----	0.28	3	6
	2-15	35-50	0.06-0.2	0.13-0.15	6.1-7.8	<2	High----------	0.24		
	15-30	30-55	0.06-0.2	0.07-0.09	6.1-7.8	<2	Moderate-----	0.24		
	30	---	---	---	---	---	-------------	----		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
171*:										
Nosrac----------	0-12	10-15	0.6-2.0	0.09-0.11	6.1-7.3	<2	Low----------	0.24	5	8
	12-45	25-35	0.2-0.6	0.10-0.12	6.1-7.3	<2	Low----------	0.32		
	45-60	18-30	0.6-2.0	0.09-0.10	6.1-7.3	<2	Moderate-----	0.28		
181, 182--------- Charlebois	0-8	15-25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Moderate-----	0.28	5	5
	8-19	27-35	0.2-0.6	0.19-0.21	6.6-7.8	<2	Moderate-----	0.24		
	19-60	15-22	0.6-2.0	0.16-0.18	7.9-9.0	<2	Low----------	0.28		
184-------------- Charlebois	0-8	15-25	0.6-2.0	0.13-0.16	6.6-7.8	<2	Moderate-----	0.20	5	6
	8-19	27-35	0.2-0.6	0.19-0.21	6.6-7.8	<2	Moderate-----	0.24		
	19-60	15-22	0.6-2.0	0.16-0.18	7.9-8.4	<2	Low----------	0.28		
185-------------- Charlebois	0-8	5-15	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low----------	0.24	5	3
	8-19	27-35	0.2-0.6	0.19-0.21	6.6-7.8	<2	Moderate-----	0.24		
	19-60	15-22	0.6-2.0	0.16-0.18	7.9-8.4	<2	Low----------	0.28		
191*:										
Chill----------- (8 to 15 percent slopes)	0-3	5-10	2.0-6.0	0.08-0.11	6.6-7.8	<2	Low----------	0.24	1	5
	3-7	25-35	0.2-0.6	0.10-0.13	6.6-7.8	<2	Moderate-----	0.15		
	7	---	---	---	---	---	-------------	----		
Chill----------- (15 to 30 percent slopes)	0-3	5-10	2.0-6.0	0.08-0.11	6.6-7.8	<2	Low----------	0.24	1	5
	3-7	25-35	0.2-0.6	0.10-0.13	6.6-7.8	<2	Moderate-----	0.15		
	7	---	---	---	---	---	-------------	----		
201-------------- Cleaver	0-6	2-4	6.0-20.0	0.08-0.10	6.6-8.4	<2	Low----------	0.28	1	2
	6-14	27-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	14-40	---	---	---	---	---	-------------	----		
202-------------- Cleaver	0-3	5-12	2.0-6.0	0.07-0.09	6.6-9.0	<2	Low----------	0.20	1	5
	3-11	25-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	11-26	---	---	---	---	---	-------------	----		
204-------------- Cleaver	0-3	5-12	2.0-6.0	0.05-0.07	6.6-9.0	<2	Low----------	0.20	1	5
	3-11	25-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	11-46	---	---	---	---	---	-------------	----		
206, 207--------- Cleaver	0-3	10-20	0.6-2.0	0.07-0.09	6.6-9.0	<2	Low----------	0.20	1	8
	3-11	25-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	11-46	---	---	---	---	---	-------------	----		
208*:										
Cleaver--------- (2 to 4 percent slopes)	0-3	5-12	2.0-6.0	0.07-0.09	6.6-9.0	<2	Low----------	0.20	1	5
	3-11	25-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	11-46	---	---	---	---	---	-------------	----		
Cleaver--------- (4 to 15 percent slopes)	0-3	5-12	2.0-6.0	0.05-0.07	6.6-9.0	<2	Low----------	0.20	1	5
	3-11	25-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	11-46	---	---	---	---	---	-------------	----		
209*:										
Cleaver--------- (4 to 15 percent slopes)	0-3	5-12	2.0-6.0	0.05-0.07	6.6-9.0	<2	Low----------	0.17	1	5
	3-11	25-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	11-46	---	---	---	---	---	-------------	----		
Cleaver--------- (15 to 30 percent slopes)	0-3	5-12	2.0-6.0	0.07-0.09	6.6-9.0	<2	Low----------	0.20	1	5
	3-11	25-35	0.06-0.2	0.12-0.16	6.6-8.4	<2	Moderate-----	0.20		
	11-46	---	---	---	---	---	-------------	----		
221-------------- Dalzell	0-3	2-7	>20	0.05-0.07	>8.4	4-8	Low----------	0.10	3	1
	3-21	20-35	0.2-0.6	0.17-0.19	>8.4	4-8	Moderate-----	0.32		
	21-28	---	---	---	---	---	-------------	----		
	28-60	5-12	2.0-6.0	0.09-0.11	>8.4	2-8	Low----------	0.24		
223-------------- Dalzell	0-3	27-30	0.2-0.6	0.17-0.19	>8.4	4-8	Moderate-----	0.37	3	6
	3-21	20-35	0.2-0.6	0.17-0.19	>8.4	4-8	Moderate-----	0.32		
	21-28	---	---	---	---	---	-------------	----		
	28-60	5-12	2.0-6.0	0.09-0.11	>8.4	2-8	Low----------	0.24		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
231*:										
Delp	0-5	2-8	>6.0	0.05-0.09	7.9-9.0	<2	Low	0.15	5	1
	5-19	5-15	2.0-6.0	0.09-0.15	>8.4	<4	Low	0.20		
	19-60	4-8	6.0-20	0.07-0.10	>8.4	<4	Low	0.15		
Lox	0-3	6-12	2.0-6.0	0.06-0.09	>7.8	4-16	Low	0.24	5	5
	3-8	25-35	0.06-0.2	0.15-0.18	>8.4	4-16	Moderate	0.32		
	8-60	5-15	2.0-6.0	0.06-0.09	>8.4	2-8	Low	0.17		
232*:										
Delp	0-5	2-5	6.0-20	0.05-0.07	7.9-9.0	<2	Low	0.15	5	1
	5-19	5-15	2.0-6.0	0.09-0.15	>8.4	<4	Low	0.20		
	19-60	4-8	6.0-20	0.07-0.10	>8.4	<4	Low	0.15		
Orizaba	0-3	20-25	0.6-2.0	0.16-0.18	>9.0	4-8	Moderate	0.43	5	5
	3-60	25-35	0.2-0.6	0.18-0.20	>8.4	>4	Moderate	0.43		
233 Delp	0-5	2-8	>6.0	0.05-0.09	7.9-9.0	<2	Low	0.15	5	1
	5-19	5-15	2.0-6.0	0.09-0.15	>8.4	<4	Low	0.20		
	19-60	4-8	6.0-20	0.07-0.10	>8.4	<4	Low	0.15		
241*:										
Devada	0-4	15-27	0.6-2.0	0.07-0.09	6.1-7.3	<2	Moderate	0.15	1	8
	4-13	40-60	0.06-0.2	0.14-0.16	6.1-7.3	<2	High	0.17		
	13	---	---	---	---	---	---	---		
Rock outcrop.										
242*:										
Devada	0-5	15-27	0.6-2.0	0.07-0.09	6.1-7.3	<2	Moderate	0.15	1	8
	5-18	40-60	0.06-0.2	0.14-0.16	6.1-7.3	<2	High	0.17		
	18	---	---	---	---	---	---	---		
Rock outcrop.										
251 Dia	0-20	18-25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Moderate	0.37	3	5
	20-60	0-5	6.0-20	0.05-0.08	6.6-8.4	<2	Low	0.20		
252 Dia	0-9	27-35	0.2-0.6	0.17-0.19	6.6-7.8	<2	Moderate	0.28	3	6
	9-24	18-25	0.2-0.6	0.14-0.19	6.6-7.8	<2	Moderate	0.28		
	24-60	0-5	6.0-20	0.05-0.08	6.6-8.4	<2	Low	0.20		
253 Dia	0-9	27-40	0.2-0.6	0.17-0.19	6.6-7.8	<2	Moderate	0.28	5	5
	9-19	18-25	0.2-0.6	0.14-0.19	6.6-7.8	<2	Low	0.28		
	19-60	0-5	6.0-20	0.05-0.08	6.6-7.8	<2	Low	0.20		
254*:										
Dia	0-9	27-40	0.2-0.6	0.17-0.19	6.6-7.8	<2	Moderate	0.28	5	5
	9-19	18-25	0.2-0.6	0.14-0.19	6.6-7.8	<2	Low	0.28		
	19-60	0-5	6.0-20	0.05-0.08	6.6-7.8	<2	Low	0.20		
Dithod (clay loam, wet)	0-11	28-35	0.2-0.6	0.19-0.21	>7.3	<4	Moderate	0.28	5	6
	11-60	18-25	0.2-0.6	0.16-0.18	7.4-8.4	<4	Moderate	0.32		
Dithod (loam, saline-alkali)	0-11	15-25	0.6-2.0	0.16-0.18	7.4-8.4	>8	Moderate	0.32	5	5
	11-60	18-25	0.2-0.6	0.16-0.18	7.4-8.4	<4	Moderate	0.32		
255*:										
Dia	0-19	15-25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Moderate	0.37	5	5
	19-24	18-25	0.2-0.6	0.14-0.19	6.6-7.8	<2	Moderate	0.28		
	24-60	0-5	6.0-20	0.05-0.08	6.6-7.8	<2	Low	0.20		
Dithod	0-11	27-40	0.2-0.6	0.17-0.20	7.4-8.4	<4	High	0.32	5	6
	11-20	20-25	0.6-2.0	0.17-0.19	7.4-8.4	<2	Moderate	0.43		
	20-60	18-25	0.2-0.6	0.16-0.18	7.4-8.4	<2	Moderate	0.37		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
256*:										
Dia-------------	0-19	15-25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Moderate-----	0.37	3	5
	19-24	18-25	0.2-0.6	0.14-0.19	6.6-7.8	<2	Moderate-----	0.28		
	24-60	0-5	6.0-20	0.05-0.08	6.6-8.4	<2	Low----------	0.20		
Sagouspe-------- (sandy loam)	0-16	5-10	2.0-6.0	0.13-0.15	6.6-8.4	<4	Low----------	0.24	5	3
	16-60	0-5	6.0-20	0.05-0.08	>7.8	<4	Low----------	0.20		
Sagouspe-------- (loamy sand)	0-16	0-5	6.0-20	0.05-0.07	6.6-8.4	<2	Low----------	0.15	5	1
	16-60	0-5	6.0-20	0.05-0.08	>7.8	<4	Low----------	0.20		
261-------------- Dithod	0-11	15-25	0.6-2.0	0.15-0.17	6.6-8.4	<4	Moderate-----	0.32	5	5
	11-20	20-25	0.2-0.6	0.15-0.18	6.6-8.4	<2	Moderate-----	0.32		
	20-60	18-25	0.2-0.6	0.15-0.18	6.6-8.4	<2	Moderate-----	0.32		
262-------------- Dithod	0-11	15-22	0.6-2.0	0.12-0.16	6.6-9.0	<4	Low----------	0.37	5	5
	11-40	18-25	0.2-0.6	0.13-0.17	6.6-8.4	<2	Moderate-----	0.43		
	40-60	27-40	0.2-0.6	0.17-0.20	6.6-8.4	<2	Moderate-----	0.37		
263-------------- Dithod	0-11	28-35	0.2-0.6	0.19-0.21	7.3	2-4	Moderate-----	0.28	5	6
	11-60	18-25	0.2-0.6	0.16-0.18	7.4-8.4	<4	Moderate-----	0.32		
264-------------- Dithod	0-11	15-25	0.6-2.0	0.16-0.18	7.4-8.4	>16	Moderate-----	0.32	5	5
	11-60	18-25	0.2-0.6	0.16-0.18	7.4-8.4	<4	Moderate-----	0.32		
265-------------- Dithod	0-11	28-35	0.2-0.6	0.17-0.19	6.6-8.4	<2	Moderate-----	0.28	5	6
	11-20	20-25	0.2-0.6	0.15-0.18	6.6-8.4	<2	Moderate-----	0.32		
	20-60	18-25	0.2-0.6	0.15-0.18	6.6-8.4	<2	Moderate-----	0.32		
268-------------- Dithod	0-11	28-35	0.2-0.6	0.19-0.21	>7.3	>16	Moderate-----	0.28	5	6
	11-60	18-25	0.2-0.6	0.16-0.18	7.4-8.4	<4	Moderate-----	0.32		
269*:										
Dithod----------	0-11	15-25	0.6-2.0	0.15-0.17	6.6-8.4	<4	Moderate-----	0.32	5	5
	11-20	20-25	0.2-0.6	0.15-0.18	6.6-8.4	<2	Moderate-----	0.32		
	20-60	18-25	0.2-0.6	0.15-0.18	6.6-8.4	<2	Moderate-----	0.32		
Sagouspe--------	0-16	5-10	2.0-6.0	0.13-0.15	6.6-8.4	<8	Low----------	0.24	5	3
	16-60	0-5	6.0-20	0.05-0.08	>7.8	<4	Low----------	0.20		
Dia-------------	0-5	15-25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Moderate-----	0.37	3	5
	5-29	18-25	0.2-0.6	0.14-0.19	6.6-7.8	<2	Moderate-----	0.28		
	29-60	0-5	6.0-20	0.05-0.08	6.6-8.4	<2	Low----------	0.20		
271-------------- East Fork	0-14	20-27	0.6-2.0	0.16-0.18	6.6-7.3	<2	Moderate-----	0.37	5	5
	14-60	25-35	0.2-0.6	0.15-0.19	6.6-8.4	<2	Moderate-----	0.28		
272-------------- East Fork	0-14	20-27	0.6-2.0	0.16-0.18	6.6-9.0	<4	Moderate-----	0.32	5	5
	14-60	25-35	0.2-0.6	0.15-0.19	6.6-8.4	<2	Moderate-----	0.32		
274-------------- East Fork	0-14	27-35	0.2-0.6	0.19-0.21	6.6-7.3	<2	Moderate-----	0.28	5	6
	14-60	25-35	0.2-0.6	0.15-0.19	6.6-8.4	<2	Moderate-----	0.28		
275-------------- East Fork	0-14	27-35	0.2-0.6	0.16-0.20	>7.8	>16	Moderate-----	0.28	5	6
	14-60	25-35	0.2-0.6	0.11-0.18	7.4-8.4	<4	Moderate-----	0.20		
276-------------- East Fork	0-8	27-35	0.2-0.6	0.19-0.21	7.4-8.4	<2	Moderate-----	0.20	5	6
	8-40	25-35	0.2-0.6	0.19-0.21	7.4-8.4	<2	Moderate-----	0.37		
	40-60	35-45	0.06-0.2	0.14-0.19	7.4-8.4	<2	High---------	0.37		
277-------------- East Fork	0-14	27-35	0.2-0.6	0.14-0.19	6.6-8.4	<2	Moderate-----	0.24	5	6
	14-60	25-35	0.2-0.6	0.15-0.19	6.6-8.4	<2	Moderate-----	0.28		
291-------------- Fallon	0-10	0-5	>20	0.06-0.08	6.6-8.4	<2	Low----------	0.15	5	1
	10-60	5-15	2.0-6.0	0.09-0.13	6.6-8.4	<2	Low----------	0.32		
292-------------- Fallon	0-10	5-15	0.6-2.0	0.09-0.13	6.6-9.0	4-8	Low----------	0.49	5	4
	10-60	5-15	2.0-6.0	0.09-0.13	6.6-8.4	<2	Low----------	0.32		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
293 Fallon	0-10	5-15	2.0-6.0	0.11-0.15	6.6-9.0	<4	Low	0.37	5	3
	10-60	5-15	2.0-6.0	0.09-0.13	6.6-8.4	<2	Low	0.32		
294 Fallon	0-10	5-15	2.0-6.0	0.13-0.15	>7.8	8-16	Low	0.37	5	3
	10-60	5-15	2.0-6.0	0.09-0.13	7.4-9.0	<8	Low	0.32		
295 Fallon	0-10	5-15	2.0-6.0	0.11-0.15	6.6-9.0	<4	Low	0.37	5	3
	10-60	5-15	2.0-6.0	0.09-0.13	6.6-8.4	<2	Low	0.32		
301, 302 Fernley	0-8	0-5	6.0-20	0.07-0.09	6.6-8.4	<2	Low	0.15	5	1
	8-60	0-5	>20	0.05-0.07	6.6-8.4	<2	Low	0.15		
311, 312 Pulstone	0-5	10-20	0.6-2.0	0.09-0.12	6.1-7.3	<2	Low	0.28	1	7
	5-18	45-60	0.06-0.2	0.12-0.16	6.6-7.3	<2	High	0.17		
	18-30	---	---	---	---	---	---	---		
	30-48	5-15	2.0-6.0	0.03-0.06	8.5-9.0	<2	Low	0.05		
313*:										
Pulstone (4 to 15 percent slopes)	0-5	5-15	2.0-6.0	0.06-0.09	6.1-7.3	<2	Low	0.17	1	6
	5-18	45-60	0.06-0.2	0.12-0.16	6.6-7.3	<2	High	0.17		
	18-30	---	---	---	---	---	---	---		
	30-48	5-15	2.0-6.0	0.03-0.06	8.5-9.0	<2	Low	0.05		
Pulstone (15 to 30 percent slopes)	0-5	5-15	2.0-6.0	0.06-0.09	6.1-7.3	<2	Low	0.17	1	6
	5-18	45-60	0.06-0.2	0.12-0.16	6.6-7.3	<2	High	0.17		
	18-30	---	---	---	---	---	---	---		
	30-48	5-15	2.0-6.0	0.03-0.06	8.5-9.0	<2	Low	0.05		
314*:										
Pulstone (4 to 15 percent slopes)	0-5	10-20	0.6-2.0	0.09-0.12	6.1-7.3	<2	Low	0.28	1	7
	5-18	45-60	0.06-0.2	0.12-0.16	6.6-7.3	<2	High	0.17		
	18-30	---	---	---	---	---	---	---		
	30-48	5-15	2.0-6.0	0.03-0.06	8.5-9.0	<2	Low	0.05		
Reno	0-3	5-15	2.0-6.0	0.08-0.12	6.1-7.3	<2	Low	0.17	2	4
	3-24	35-60	<0.06	0.14-0.16	6.1-7.8	<2	High	0.24		
	24-44	---	---	---	---	---	---	---		
	44-60	3-8	>6.0	0.05-0.07	7.4-8.4	<4	Low	0.15		
Pulstone (15 to 30 percent slopes)	0-5	10-20	0.6-2.0	0.07-0.12	6.1-7.3	<2	Low	0.28	1	7
	5-18	45-60	0.06-0.2	0.12-0.16	6.6-7.3	<2	High	0.17		
	18-30	---	---	---	---	---	---	---		
	30-48	5-15	2.0-6.0	0.03-0.06	8.5-9.0	<2	Low	0.05		
315*:										
Pulstone	0-5	10-20	0.6-2.0	0.09-0.12	6.1-7.3	<2	Low	0.28	1	7
	5-18	45-60	0.06-0.2	0.12-0.16	6.6-7.3	<2	High	0.17		
	18-30	---	---	---	---	---	---	---		
	30-48	5-15	2.0-6.0	0.03-0.06	8.5-9.0	<2	Low	0.05		
Stucky	0-6	8-15	0.6-2.0	0.05-0.17	6.6-7.3	<2	Low	0.05	5	8
	6-20	27-35	0.2-0.6	0.06-0.09	6.6-7.3	<2	Low	0.05		
	20-60	12-25	0.2-0.6	0.06-0.09	6.6-8.4	<2	Low	0.05		
321 Haybourne	0-11	8-15	0.6-2.0	0.15-0.17	6.6-7.8	<2	Low	0.37	5	5
	11-32	8-18	2.0-6.0	0.10-0.12	6.6-8.4	<2	Low	0.28		
	32-60	5-12	2.0-20	0.07-0.10	6.6-8.4	<2	Low	0.15		
331*:										
Hocar	0-9	10-16	0.6-2.0	0.10-0.12	7.9-8.4	<2	Low	0.32	1	8
	9-19	10-18	0.6-2.0	0.06-0.10	7.9-8.4	<2	Low	0.32		
	19	---	---	---	---	---	---	---		
Rock outcrop.										
341 Holbrook	0-10	10-15	2.0-6.0	0.08-0.10	6.1-7.3	<2	Low	0.28	5	8
	10-60	5-10	2.0-6.0	0.04-0.06	6.1-8.4	<2	Low	0.15		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
343*:										
Holbrook----------	0-7	5-10	2.0-6.0	0.06-0.08	6.1-7.3	<2	Low-----------	0.24	5	5
	7-60	5-10	2.0-6.0	0.04-0.06	6.1-8.4	<2	Low-----------	0.15		
Hotsprings--------	0-5	2-6	2.0-20	0.05-0.08	6.6-7.3	<2	Low-----------	0.20	5	4
	5-60	2-4	6.0-20	0.04-0.07	6.6-7.3	<2	Low-----------	0.20		
344*:										
Holbrook----------	0-8	5-10	2.0-6.0	0.06-0.08	6.1-7.3	<2	Low-----------	0.24	5	5
	8-60	5-10	2.0-6.0	0.04-0.06	6.1-8.4	<2	Low-----------	0.15		
Shree-------------	0-10	15-25	0.6-2.0	0.10-0.12	6.1-7.8	<2	Low-----------	0.10	5	8
	10-26	27-35	0.2-0.6	0.06-0.09	6.6-7.8	<2	Moderate------	0.10		
	26-60	10-25	2.0-6.0	0.05-0.07	6.6-7.8	<2	Low-----------	0.15		
345*:										
Holbrook Variant	0-9	5-10	2.0-6.0	0.09-0.11	6.6-7.3	<2	Low-----------	0.20	2	8
	9-35	5-10	2.0-6.0	0.09-0.11	6.6-7.3	<2	Low-----------	0.20		
	35	---	---	---	---	---	-------------	----		
Rock outcrop.										
352---------------- Hotsprings	0-4	2-4	6.0-20	0.05-0.08	6.6-7.3	<2	Low-----------	0.20	5	2
	4-60	2-4	6.0-20	0.04-0.07	6.6-7.3	<2	Low-----------	0.20		
353---------------- Hotsprings	0-4	2-6	2.0-20	0.05-0.08	6.6-7.3	<2	Low-----------	0.20	5	4
	4-60	2-4	6.0-20	0.04-0.07	6.6-7.3	<2	Low-----------	0.20		
354*:										
Hotsprings--------	0-4	2-6	2.0-20	0.05-0.08	6.6-7.3	<2	Low-----------	0.20	5	4
	4-60	2-4	6.0-20	0.04-0.07	6.6-7.3	<2	Low-----------	0.20		
Holbrook----------	0-8	5-12	2.0-6.0	0.07-0.09	6.1-7.3	<2	Low-----------	0.28	5	4
	8-60	5-10	2.0-6.0	0.04-0.06	6.1-8.4	<2	Low-----------	0.15		
361---------------- Hough	0-10	5-10	6.0-20.0	0.06-0.08	6.6-7.3	<2	Low-----------	0.20	4	2
	10-21	18-25	0.6-2.0	0.16-0.18	6.6-7.3	<2	Moderate------	0.17		
	21-60	3-5	>20	0.04-0.06	6.6-8.4	2-4	Low-----------	0.15		
371*:										
Hyloc-------------	0-5	14-20	2.0-6.0	0.06-0.10	6.1-7.3	<2	Low-----------	0.10	1	8
	5-18	40-55	0.06-0.2	0.12-0.15	6.6-7.3	<2	High----------	0.24		
	18-24	---	---	---	---	---	-------------	----		
	24	---	---	---	---	---	-------------	----		
Ister-------------	0-17	10-15	2.0-6.0	0.07-0.09	6.6-7.3	<2	Low-----------	0.10	2	8
	17-38	25-35	0.2-0.6	0.09-0.14	6.6-7.8	<2	Moderate------	0.10		
	38	---	---	---	---	---	-------------	----		
372*:										
Hyloc-------------	0-5	14-20	2.0-6.0	0.06-0.10	6.1-7.3	<2	Low-----------	0.10	1	8
	5-18	40-55	0.06-0.2	0.12-0.15	6.6-7.3	<2	High----------	0.24		
	18-24	---	---	---	---	---	-------------	----		
	24	---	---	---	---	---	-------------	----		
Ister-------------	0-17	10-15	2.0-6.0	0.08-0.10	6.6-7.3	<2	Low-----------	0.10	2	8
	17-38	25-35	0.2-0.6	0.09-0.14	6.6-7.8	<2	Moderate------	0.10		
	38	---	---	---	---	---	-------------	----		
Rock outcrop.										
391---------------- Juva	0-4	5-15	0.6-2.0	0.15-0.17	7.9-9.0	<2	Low-----------	0.32	5	7
	4-60	5-15	2.0-6.0	0.07-0.10	7.9-9.0	<4	Low-----------	0.20		
392---------------- Juva	0-4	5-15	2.0-6.0	0.09-0.11	7.9-9.0	<2	Low-----------	0.24	5	8
	4-60	5-15	2.0-6.0	0.07-0.10	7.9-9.0	<4	Low-----------	0.20		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group
								K	T	
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
401--------------- Lahontan	0-12	27-35	0.2-0.6	0.18-0.21	>9.0	>16	Moderate-----	0.43	5	6
	12-60	35-60	<0.06	0.15-0.19	>9.0	>8	High---------	0.28		
411--------------- Lapon	0-2	15-25	0.6-2.0	0.10-0.12	6.6-7.8	<2	Low----------	0.10	1	8
	2-10	30-35	0.06-0.2	0.12-0.14	6.6-9.0	<4	Low----------	0.10		
	10-20	---	---	---	---	---	-------------	----		
	20	---	---	---	---	---	-------------	----		
412*:										
Lapon-----------	0-2	15-25	0.6-2.0	0.10-0.12	6.6-7.8	<2	Low----------	0.10	1	8
	2-10	30-35	0.06-0.2	0.12-0.14	6.6-9.0	<4	Low----------	0.10		
	10-36	---	---	---	---	---	-------------	----		
	36	---	---	---	---	---	-------------	----		
Rubble land.										
Rock outcrop.										
413*:										
Lapon-----------	0-6	15-25	0.6-2.0	0.14-0.16	6.6-7.8	<2	Low----------	0.15	1	7
	6-14	30-35	0.06-0.2	0.12-0.14	6.6-9.0	<4	Low----------	0.10		
	14-40	---	---	---	---	---	-------------	----		
	40	---	---	---	---	---	-------------	----		
Pulstone---------	0-5	10-20	0.6-2.0	0.09-0.12	6.1-7.3	<2	Low----------	0.28	1	7
	5-18	45-60	0.06-0.2	0.12-0.16	6.6-7.3	<2	High---------	0.17		
	18-30	---	---	---	---	---	-------------	----		
	30-48	5-15	2.0-6.0	0.03-0.06	8.5-9.0	<2	Low----------	0.05		
Old Camp---------	0-4	10-20	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low----------	0.17	1	8
	4-17	25-35	0.2-0.6	0.08-0.11	6.6-9.0	<2	Moderate-----	0.15		
	17	---	---	---	---	---	-------------	----		
441--------------- Lunder	0-7	18-27	0.6-2.0	0.12-0.14	6.6-7.3	<2	Low----------	0.10	1	6
	7-16	50-60	0.06-0.2	0.11-0.14	6.6-7.3	<2	High---------	0.24		
	16-31	---	---	---	---	---	-------------	----		
	31-60	5-10	0.2-0.6	0.02-0.05	>7.8	2-4	Low----------	0.05		
451--------------- Obanton	0-11	2-12	6.0-20	0.06-0.09	7.4-9.0	<4	Low----------	0.20	5	3
	11-60	18-35	0.2-0.6	0.17-0.19	>8.4	<2	Moderate-----	0.24		
452--------------- Obanton	0-11	8-15	2.0-6.0	0.09-0.13	7.4-9.0	<4	Low----------	0.28	5	3
	11-60	18-35	0.2-0.6	0.17-0.19	>8.4	<2	Moderate-----	0.24		
453--------------- Obanton	0-11	10-18	2.0-6.0	0.09-0.13	>8.4	8-16	Low----------	0.32	5	3
	11-60	18-35	0.2-0.6	0.17-0.19	>8.4	<2	Moderate-----	0.24		
462*:										
Olac-------------	0-4	15-22	0.6-6.0	0.07-0.09	6.1-7.8	<2	Low----------	0.10	1	8
	4-14	23-30	0.6-2.0	0.05-0.07	6.1-7.8	<2	Low----------	0.05		
	14	---	---	---	---	---	-------------	----		
Rock outcrop.										
464*:										
Olac-------------	0-3	15-22	0.6-6.0	0.07-0.09	6.1-7.8	<2	Low----------	0.10	1	8
	3-10	23-30	0.6-2.0	0.05-0.07	6.1-7.8	<2	Low----------	0.05		
	10	---	---	---	---	---	-------------	----		
Rock outcrop.										
466*:										
Olac-------------	0-4	15-22	0.6-6.0	0.07-0.09	6.1-7.8	<2	Low----------	0.10	1	8
	4-14	23-30	0.6-2.0	0.05-0.07	6.1-7.8	<2	Low----------	0.05		
	14	---	---	---	---	---	-------------	----		
Ister------------	0-11	10-15	2.0-6.0	0.07-0.09	6.6-7.3	<2	Low----------	0.10	2	8
	11-38	25-35	0.2-0.6	0.09-0.14	6.6-7.8	<2	Moderate-----	0.10		
	38	---	---	---	---	---	-------------	----		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
466*:										
Rock outcrop.										
471*:										
Oppio	0-6	8-18	2.0-6.0	0.07-0.09	6.6-7.8	<2	Low	0.28	2	8
	6-31	40-50	0.06-0.2	0.14-0.16	6.6-7.8	<2	High	0.17		
	31	---	---	---	---	---	---	----		
Nosrac	0-12	27-30	0.2-2.0	0.12-0.14	6.1-7.3	<2	Moderate	0.28	5	8
	12-60	25-35	0.2-0.6	0.10-0.12	6.1-7.3	<2	Low	0.32		
481 Orizaba	0-3	5-15	2.0-6.0	0.09-0.11	>9.0	8-16	Low	0.43	5	3
	3-60	25-35	0.2-0.6	0.18-0.20	8.5-9.0	4-8	Moderate	0.43		
482 Orizaba	0-3	15-25	0.6-2.0	0.16-0.18	>9.0	>16	Moderate	0.43	5	5
	3-60	25-35	0.2-0.6	0.18-0.20	8.5-9.0	4-8	Moderate	0.43		
483 Orizaba	0-3	20-25	0.6-2.0	0.16-0.18	>9.0	4-8	Moderate	0.43	5	5
	3-60	25-35	0.2-0.6	0.18-0.20	>8.4	4-8	Moderate	0.43		
484 Orizaba	0-3	27-35	0.06-0.2	0.18-0.21	>9.0	8-16	Moderate	0.49	5	7
	3-60	25-35	0.2-0.6	0.18-0.20	>8.4	>4	Moderate	0.43		
486*:										
Orizaba	0-3	15-25	0.6-2.0	0.16-0.18	>9.0	>16	Moderate	0.43	5	5
	3-60	25-35	0.2-0.6	0.18-0.20	8.5-9.0	>4	Moderate	0.43		
Delp	0-5	2-8	>6.0	0.05-0.09	7.9-9.0	<2	Low	0.15	5	1
	5-19	5-15	2.0-6.0	0.09-0.15	>8.4	<4	Low	0.20		
	19-60	4-8	6.0-20	0.07-0.10	>8.4	<4	Low	0.15		
491 Otomo	0-4	5-18	2.0-6.0	0.06-0.09	>7.8	<2	Low	0.28	1	4
	4-10	5-18	2.0-6.0	0.05-0.08	>8.4	<4	Low	0.28		
	10-23	---	---	---	---	---	---	----		
	23-60	5-10	2.0-20	0.04-0.06	>8.4	<4	Low	0.17		
501 Parran	0-3	27-40	<0.06	0.16-0.18	>8.4	>16	Moderate	0.37	5	7
	3-40	35-55	<0.06	0.14-0.16	>8.4	>16	High	0.37		
	40-60	35-55	<0.06	0.14-0.16	>8.4	>16	High	0.37		
511, 512 Patna	0-5	3-10	>6.0	0.07-0.09	6.6-7.8	<2	Low	0.15	5	1
	5-21	10-18	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.24		
	21-60	0-5	>6.0	0.07-0.10	7.4-8.4	<2	Low	0.15		
514 Patna	0-8	3-10	6.0-20	0.07-0.09	6.6-7.8	<2	Low	0.15	5	1
	8-15	10-18	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.10		
	15-43	0-5	6.0-20	0.07-0.09	7.4-8.4	<2	Low	0.05		
	43-60	20-30	0.6-2.0	0.19-0.21	7.9-9.0	<2	Moderate	0.32		
516 Patna	0-5	3-10	>6.0	0.07-0.09	6.6-7.8	<2	Low	0.15	5	1
	5-15	10-18	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.24		
	15-60	0-5	>6.0	0.07-0.10	7.4-8.4	<2	Low	0.15		
517*:										
Patna	0-5	3-10	>6.0	0.07-0.09	6.6-7.8	<2	Low	0.15	5	1
	5-15	10-18	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.24		
	15-60	0-5	>6.0	0.07-0.10	7.4-8.4	<2	Low	0.15		
Hough	0-10	5-10	6.0-20.0	0.06-0.08	6.6-7.3	<2	Low	0.20	4	2
	10-21	18-25	0.6-2.0	0.16-0.18	6.6-7.3	<2	Moderate	0.17		
	21-60	3-5	>20	0.04-0.06	6.6-8.4	2-4	Low	0.15		
Playas.										

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
518---------------Patna	0-3	5-10	2.0-6.0	0.10-0.12	6.6-7.8	<2	Low------------	0.24	5	3
	3-30	10-18	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low------------	0.24		
	30-60	0-5	>20	0.04-0.06	7.4-8.4	<2	Low------------	0.10		
519---------------Patna	0-7	7-14	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low------------	0.37	5	5
	7-34	10-18	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low------------	0.24		
	34-60	0-5	>6.0	0.07-0.09	7.4-8.4	<2	Low------------	0.15		
521---------------Pizene	0-6	5-10	2.0-6.0	0.10-0.12	>7.8	<2	Low------------	0.28	5	3
	6-21	18-25	0.2-0.6	0.12-0.15	>8.4	4-8	Moderate------	0.24		
	21-60	5-10	2.0-6.0	0.13-0.16	>7.8	<2	Low------------	0.32		
522*:										
Pizene-----------	0-6	5-10	2.0-6.0	0.10-0.12	>7.8	<2	Low------------	0.28	5	3
	6-21	18-25	0.2-0.6	0.12-0.15	>8.4	4-8	Moderate------	0.24		
	21-60	5-10	2.0-6.0	0.13-0.16	7.9-9.0	<2	Low------------	0.32		
Orizaba----------	0-3	27-35	0.06-0.2	0.18-0.21	>9.0	>16	Moderate------	0.49	5	7
	3-60	25-35	0.2-0.6	0.18-0.20	8.5-9.0	>4	Moderate------	0.43		
523---------------Pizene	0-6	10-20	0.6-2.0	0.16-0.18	>7.8	<2	Low------------	0.37	5	5
	6-21	18-25	0.2-0.6	0.12-0.15	>8.4	4-8	Moderate------	0.24		
	21-60	5-10	2.0-6.0	0.13-0.16	7.9-9.0	<2	Low------------	0.32		
524---------------Pizene	0-6	3-8	6.0-20	0.09-0.10	>7.8	<2	Low------------	0.32	5	2
	6-21	18-25	0.2-0.6	0.12-0.15	>8.4	4-8	Moderate------	0.24		
	21-60	5-10	2.0-6.0	0.13-0.16	7.9-9.0	<2	Low------------	0.32		
531---------------Perazzo	0-4	14-20	0.6-2.0	0.07-0.10	6.6-7.8	<2	Low------------	0.10	3	7
	4-18	20-30	0.2-0.6	0.11-0.14	6.6-7.8	<2	Low------------	0.10		
	18-60	0-4	6.0-20	0.02-0.04	>7.8	<2	Low------------	0.02		
532---------------Perazzo	0-4	14-20	0.6-2.0	0.07-0.10	6.6-7.8	<2	Low------------	0.10	3	7
	4-13	20-30	0.2-0.6	0.11-0.14	6.6-7.8	<2	Low------------	0.10		
	13-21	2-10	2.0-6.0	0.05-0.07	6.6-7.8	<2	Low------------	0.02		
	21-60	0-4	6.0-20	0.02-0.04	>7.8	<2	Low------------	0.02		
534---------------Perazzo	0-4	12-18	2.0-6.0	0.05-0.08	6.6-7.8	<2	Low------------	0.05	3	8
	4-18	20-30	0.2-0.6	0.11-0.14	6.6-7.8	<2	Low------------	0.10		
	18-60	0-4	6.0-20	0.02-0.04	>7.8	<2	Low------------	0.02		
535---------------Perazzo	0-4	12-16	2.0-6.0	0.05-0.08	6.6-7.8	<2	Low------------	0.05	3	8
	4-18	20-30	0.2-0.6	0.11-0.14	6.6-7.8	<2	Low------------	0.10		
	18-60	0-4	6.0-20	0.02-0.04	>7.8	<2	Low------------	0.02		
541*:										
Uripnes----------	0-9	5-10	2.0-6.0	0.05-0.08	6.6-7.8	<2	Low------------	0.15	1	4
	9-30	---	---	---	---	---	---------------	----		
	30	---	---	---	---	---	---------------	----		
Chill------------	0-3	5-10	2.0-6.0	0.08-0.11	6.6-7.8	<2	Low------------	0.24	1	5
	3-7	25-35	0.2-0.6	0.10-0.13	6.6-7.8	<2	Moderate------	0.15		
	7	---	---	---	---	---	---------------	----		
Rock outcrop.										
551---------------Rawe	0-1	6-12	2.0-6.0	0.09-0.11	6.6-8.4	<2	Low-----------	0.37	5	4
	1-10	40-50	0.06-0.2	0.12-0.14	6.6-8.4	<2	High----------	0.24		
	10-60	5-8	2.0-6.0	0.05-0.08	>7.8	<4	Low-----------	0.10		
552*:										
Rawe------------- (gravelly sandy loam)	0-1	6-12	2.0-6.0	0.09-0.11	6.6-8.4	<2	Low-----------	0.37	5	4
	1-10	40-50	0.06-0.2	0.12-0.14	6.6-8.4	<2	High----------	0.24		
	10-60	5-8	2.0-6.0	0.05-0.08	>7.8	<4	Low-----------	0.10		
Rawe------------- (loamy sand)	0-12	2-8	6.0-20	0.08-0.11	6.6-8.4	<2	Low-----------	0.28	5	2
	12-21	40-50	0.06-0.2	0.12-0.14	6.6-8.4	<2	High----------	0.24		
	21-60	5-8	2.0-6.0	0.05-0.08	>7.8	<4	Low-----------	0.10		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
553*:										
Rawe-------------	0-1	6-12	2.0-6.0	0.09-0.11	6.6-8.4	<2	Low-----------	0.37	5	4
	1-10	40-50	0.06-0.2	0.12-0.14	6.6-8.4	<2	High----------	0.24		
	10-60	5-8	2.0-6.0	0.05-0.08	>7.8	<4	Low-----------	0.10		
Malpais----------	0-3	5-15	2.0-6.0	0.04-0.07	6.6-7.3	<2	Low-----------	0.15	5	4
	3-25	10-18	2.0-6.0	0.10-0.12	7.9-8.4	<4	Low-----------	0.10		
	25-60	10-18	2.0-6.0	0.07-0.10	7.9-9.0	<4	Low-----------	0.10		
561-------------- Rebel	0-14	10-15	2.0-6.0	0.09-0.12	6.6-7.8	<4	Low-----------	0.24	5	3
	14-60	10-18	2.0-6.0	0.13-0.15	7.4-9.0	<4	Low-----------	0.20		
571-------------- Reno	0-5	5-15	2.0-6.0	0.08-0.12	6.1-7.3	<2	Low-----------	0.17	2	4
	5-27	35-60	<0.06	0.14-0.16	6.1-7.8	<2	High----------	0.24		
	27-41	---	---	---	---	---	--------------	----		
	41-60	3-8	>6.0	0.05-0.07	7.4-8.4	<4	Low-----------	0.15		
572-------------- Reno	0-5	5-15	2.0-6.0	0.08-0.12	6.1-7.3	<2	Low-----------	0.17	2	4
	5-27	35-60	<0.06	0.14-0.16	6.1-7.8	<2	High----------	0.24		
	27-41	---	---	---	---	---	--------------	----		
	41-60	3-8	>6.0	0.05-0.07	7.4-8.4	<4	Low-----------	0.15		
581-------------- Risue	0-1	15-20	0.6-2.0	0.08-0.09	6.6-7.8	<2	Low-----------	0.05	1	8
	1-16	35-50	0.06-0.2	0.14-0.17	6.6-8.4	<2	High----------	0.24		
	16-60	---	---	---	---	---	--------------	----		
582-------------- Risue	0-1	15-20	0.6-2.0	0.12-0.14	6.6-7.8	<2	Low-----------	0.24	1	6
	1-16	35-50	0.06-0.2	0.14-0.17	6.6-8.4	<2	High----------	0.24		
	16-60	---	---	---	---	---	--------------	----		
591-------------- Rose Creek	0-18	10-15	0.6-2.0	0.16-0.18	6.6-8.4	2-4	Low-----------	0.37	5	8
	18-60	10-18	2.0-6.0	0.13-0.15	6.6-8.4	2-4	Low-----------	0.28		
601-------------- Rusty	0-9	2-5	6.0-20	0.07-0.10	6.6-8.4	<2	Low-----------	0.20	5	2
	9-22	20-28	0.2-0.6	0.15-0.19	>8.4	4-8	Moderate------	0.24		
	22-60	4-8	0.6-2.0	0.09-0.13	7.4-9.0	4-8	Low-----------	0.43		
603*:										
Rusty------------	0-9	2-5	6.0-20	0.07-0.10	6.6-8.4	<2	Low-----------	0.20	5	2
	9-22	20-28	0.2-0.6	0.15-0.19	>8.4	4-8	Moderate------	0.24		
	22-60	4-8	0.6-2.0	0.09-0.13	7.4-9.0	4-8	Low-----------	0.43		
Isolde-----------	0-7	0-5	>20	0.06-0.09	6.6-8.4	<2	Low-----------	0.28	5	1
	7-60	0-5	>20	0.06-0.09	6.6-8.4	<2	Low-----------	0.24		
604*:										
Rusty------------	0-9	2-5	6.0-20	0.07-0.10	6.6-8.4	<2	Low-----------	0.20	5	2
	9-22	20-28	0.2-0.6	0.15-0.19	>8.4	4-8	Moderate------	0.24		
	22-60	4-8	0.6-2.0	0.09-0.13	7.4-9.0	4-8	Low-----------	0.43		
Playas.										
611-------------- Sagouspe	0-8	5-10	2.0-6.0	0.13-0.15	6.6-8.4	<8	Low-----------	0.24	5	3
	8-60	0-5	6.0-20	0.10-0.13	>7.8	<4	Low-----------	0.20		
612-------------- Sagouspe	0-8	5-13	2.0-6.0	0.10-0.12	>7.8	8-16	Low-----------	0.32	5	3
	8-60	2-10	6.0-20	0.10-0.13	7.4-8.4	<4	Low-----------	0.20		
613-------------- Sagouspe	0-8	10-20	0.6-2.0	0.12-0.16	6.6-9.0	<2	Low-----------	0.37	5	5
	8-60	0-4	6.0-20	0.07-0.11	6.6-9.0	<2	Low-----------	0.17		
621, 623--------- Saralegui	0-5	1-5	6.0-20	0.05-0.07	6.1-7.3	<2	Low-----------	0.10	5	1
	5-39	10-15	2.0-6.0	0.09-0.12	6.6-7.8	<2	Low-----------	0.17		
	39-60	2-5	6.0-20	0.06-0.08	6.6-9.0	<2	Low-----------	0.10		
625-------------- Saralegui	0-5	3-10	2.0-6.0	0.10-0.12	6.1-7.3	<2	Low-----------	0.20	5	3
	5-32	10-15	2.0-6.0	0.09-0.12	6.6-7.8	<2	Low-----------	0.17		
	32-60	2-5	6.0-20	0.06-0.08	6.6-9.0	<2	Low-----------	0.10		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
626--------------- Saralegui	0-5	1-5	6.0-20	0.05-0.07	6.1-7.3	<2	Low-----------	0.10	5	1
	5-32	10-15	2.0-6.0	0.09-0.12	6.6-7.8	<2	Low-----------	0.17		
	32-60	2-5	6.0-20	0.06-0.08	6.6-9.0	<2	Low-----------	0.10		
627--------------- Saralegui Variant	0-4	2-5	6.0-20	0.07-0.10	7.4-8.4	<2	Low-----------	0.20	5	2
	4-20	8-15	2.0-6.0	0.09-0.12	7.9-9.0	<4	Low-----------	0.32		
	20-60	10-18	0.2-0.6	0.11-0.13	>8.4	<4	Low-----------	0.43		
631--------------- Singatse	0-6	5-15	0.6-2.0	0.05-0.07	7.9-9.0	<2	Low-----------	0.24	1	6
	6-12	---	---	---	---	---	--------------	----		
	12	---	---	---	---	---	--------------	----		
632*:										
Singatse---------	0-6	5-15	0.6-2.0	0.05-0.07	7.9-9.0	<2	Low-----------	0.24	1	6
	6-12	---	---	---	---	---	--------------	----		
	12	---	---	---	---	---	--------------	----		
Rock outcrop.										
633*:										
Singatse---------	0-6	7-15	0.6-2.0	0.05-0.07	7.9-9.0	<2	Low-----------	0.24	1	6
	6-12	---	---	---	---	---	--------------	----		
	12	---	---	---	---	---	--------------	----		
Theon------------	0-2	10-20	2.0-6.0	0.06-0.09	6.6-8.4	<2	Low-----------	0.05	1	8
	2-11	25-35	0.2-0.6	0.06-0.09	6.6-9.0	<2	Low-----------	0.15		
	11-16	---	---	---	---	---	--------------	----		
	16	---	---	---	---	---	--------------	----		
641, 642---------- Tocan	0-6	8-15	2.0-6.0	0.09-0.12	6.6-7.8	<4	Low-----------	0.32	5	3
	6-15	20-28	0.2-0.6	0.16-0.19	6.6-8.4	<4	Moderate------	0.17		
	15-60	6-10	2.0-6.0	0.07-0.10	7.9-9.0	<4	Low-----------	0.15		
643--------------- Tocan	0-6	8-15	2.0-6.0	0.08-0.11	6.6-7.8	<2	Low-----------	0.24	5	5
	6-15	20-28	0.2-0.6	0.16-0.19	6.6-8.4	<4	Moderate------	0.17		
	15-60	6-10	2.0-6.0	0.07-0.10	7.9-9.0	<4	Low-----------	0.15		
644*:										
Tocan------------	0-8	8-15	2.0-6.0	0.09-0.12	6.6-8.4	<4	Low-----------	0.32	5	3
	8-17	20-28	0.2-0.6	0.16-0.19	6.6-8.4	<4	Moderate------	0.17		
	17-60	6-10	2.0-6.0	0.07-0.10	7.9-9.0	<4	Low-----------	0.15		
Yerington--------	0-8	0-4	6.0-20	0.08-0.12	7.4-8.4	<2	Low-----------	0.17	5	2
	8-60	2-5	6.0-20	0.07-0.12	>8.4	<2	Low-----------	0.20		
651--------------- Theon	0-2	10-20	2.0-6.0	0.06-0.09	6.6-8.4	<2	Low-----------	0.05	1	8
	2-11	25-35	0.2-0.6	0.06-0.09	6.6-9.0	<2	Low-----------	0.15		
	11-16	---	---	---	---	---	--------------	----		
	16	---	---	---	---	---	--------------	----		
652*:										
Theon------------ (30 to 50 percent slopes)	0-2	10-20	2.0-6.0	0.06-0.09	6.6-8.4	<2	Low-----------	0.05	1	8
	2-11	25-35	0.2-0.6	0.06-0.09	6.6-9.0	<2	Low-----------	0.15		
	11-16	---	---	---	---	---	--------------	----		
	16	---	---	---	---	---	--------------	----		
Theon------------ (50 to 75 percent slopes)	0-2	12-20	0.6-6.0	0.04-0.09	6.6-8.4	<2	Low-----------	0.05	1	8
	2-11	25-35	0.2-0.6	0.06-0.09	6.6-9.0	<2	Low-----------	0.15		
	11-16	---	---	---	---	---	--------------	----		
	16	---	---	---	---	---	--------------	----		
Olac-------------	0-4	15-22	0.6-6.0	0.07-0.09	6.1-7.8	<2	Low-----------	0.10	1	8
	4-12	23-30	0.6-2.0	0.05-0.07	6.1-7.8	<2	Low-----------	0.05		
	12	---	---	---	---	---	--------------	----		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
653*:										
Theon	0-2	10-20	2.0-6.0	0.06-0.09	6.6-8.4	<2	Low	0.05	1	8
	2-11	25-35	0.2-0.6	0.06-0.09	6.6-9.0	<2	Low	0.15		
	11-16	---	---	---	---	---	---	---		
	16	---	---	---	---	---	---	---		
Lapon	0-6	15-25	0.6-2.0	0.10-0.12	6.6-7.8	<2	Low	0.10	1	8
	6-14	30-35	0.06-0.2	0.12-0.14	6.6-9.0	<4	Low	0.10		
	14-40	---	---	---	---	---	---	---		
	40	---	---	---	---	---	---	---		
Olac	0-4	15-22	0.6-6.0	0.07-0.09	6.1-7.8	<2	Low	0.10	1	8
	4-12	23-30	0.6-2.0	0.05-0.07	6.1-7.8	<2	Low	0.05		
	12	---	---	---	---	---	---	---		
654*:										
Theon	0-2	12-20	0.6-6.0	0.04-0.09	6.6-8.4	<2	Low	0.05	1	8
	2-11	25-35	0.2-0.6	0.06-0.09	6.6-9.0	<2	Low	0.15		
	11-16	---	---	---	---	---	---	---		
	16	---	---	---	---	---	---	---		
Rock outcrop.										
Old Camp	0-4	10-20	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.17	1	8
	4-14	25-35	0.2-0.6	0.08-0.11	6.6-9.0	<2	Moderate	0.15		
	14	---	---	---	---	---	---	---		
655*:										
Theon	0-10	0-5	6.0-20	0.05-0.07	6.6-8.4	<2	Low	0.20	1	4
	10-14	25-35	0.2-0.6	0.06-0.09	6.6-9.0	<2	Low	0.15		
	14-20	---	---	---	---	---	---	---		
	20	---	---	---	---	---	---	---		
Yerington	0-8	2-5	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	5	4
	8-60	2-5	6.0-20	0.07-0.12	>8.4	<2	Low	0.20		
661 Isolde	0-7	0-5	>20	0.06-0.09	6.6-8.4	<2	Low	0.28	5	1
	7-60	0-5	>20	0.06-0.09	6.6-9.0	<2	Low	0.24		
662*:										
Isolde	0-7	0-5	>20	0.06-0.09	6.6-8.4	<2	Low	0.28	5	1
	7-60	0-5	>20	0.06-0.09	6.6-8.4	<2	Low	0.24		
Patna	0-5	3-10	>6.0	0.07-0.09	6.6-7.8	<2	Low	0.15	5	1
	5-15	10-18	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.24		
	15-60	0-5	>6.0	0.07-0.10	7.4-8.4	<2	Low	0.15		
663 Isolde	0-6	0-5	>20	0.06-0.09	6.6-8.4	4-8	Low	0.28	5	1
	6-60	0-5	>20	0.06-0.09	6.6-8.4	4-8	Low	0.24		
671 Toulon	0-5	10-15	2.0-6.0	0.12-0.15	7.9-9.0	2-4	Low	0.24	1	6
	5-13	12-15	2.0-6.0	0.06-0.08	7.9-9.0	2-4	Low	0.20		
	13-60	0-3	>20	0.03-0.06	7.9-9.0	2-4	Low	0.10		
681 Yerington Variant	0-4	18-27	0.6-2.0	0.14-0.16	7.9-9.0	8-16	Low	0.43	5	4
	4-60	20-30	0.2-0.6	0.16-0.19	>7.8	8-16	Moderate	0.43		
691 Ultra	0-2	4-12	2.0-6.0	0.05-0.07	6.6-9.0	<4	Low	0.24	5	5
	2-11	35-50	<0.06	0.15-0.18	6.6-9.0	>16	High	0.37		
	11-60	35-50	<0.06	0.14-0.18	6.6-9.0	>16	High	0.49		
701 Veta	0-6	5-15	2.0-6.0	0.04-0.08	6.6-7.3	<2	Low	0.10	5	8
	6-18	5-15	2.0-6.0	0.04-0.08	6.6-7.8	<2	Low	0.10		
	18-60	2-15	2.0-6.0	0.04-0.08	6.6-8.4	<2	Low	0.10		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
702----------------- Veta	0-6	5-15	2.0-6.0	0.04-0.08	6.6-7.3	<2	Low------------	0.10	5	5
	6-18	5-15	2.0-6.0	0.04-0.08	6.6-7.8	<2	Low------------	0.10		
	18-60	2-15	2.0-6.0	0.04-0.08	6.6-8.4	<2	Low------------	0.10		
704----------------- Veta	0-6	5-15	2.0-6.0	0.04-0.08	6.6-7.3	<2	Low------------	0.10	5	8
	6-18	5-15	2.0-6.0	0.04-0.08	6.6-7.8	<2	Low------------	0.10		
	18-60	2-15	2.0-6.0	0.04-0.08	6.6-8.4	<2	Low------------	0.10		
711*:										
Vylach------------	0-5	2-5	2.0-6.0	0.09-0.12	6.6-9.0	<2	Low------------	0.32	1	8
	5-12	20-35	0.2-0.6	0.17-0.19	6.6-9.0	<2	Moderate------	0.20		
	12-27	---	---	---	---	---	--------------	----		
	27-60	---	---	---	---	---	--------------	----		
Weena------------	0-7	18-27	0.6-2.0	0.13-0.16	6.6-9.0	<4	Moderate------	0.55	1	6
	7-17	---	---	---	---	---	--------------	----		
	17	---	---	---	---	---	--------------	----		
721----------------- Wabunka	0-9	2-5	6.0-20	0.06-0.08	>8.4	4-8	Low------------	0.24	5	2
	9-60	10-18	0.6-2.0	0.10-0.14	>7.8	2-8	Low------------	0.32		
722----------------- Wabunka	0-9	15-22	0.6-2.0	0.16-0.18	>8.4	4-8	Low------------	0.43	5	5
	9-60	10-18	0.6-2.0	0.10-0.14	>7.8	2-8	Low------------	0.32		
723, 724----------- Wabunka	0-9	15-22	0.6-2.0	0.16-0.18	>8.4	>8	Low------------	0.43	5	5
	9-60	10-18	0.6-2.0	0.10-0.14	>7.8	2-8	Low------------	0.32		
725*:										
Wabunka-----------	0-9	15-22	0.6-2.0	0.16-0.18	>8.4	>8	Low------------	0.43	5	5
	9-60	10-18	0.6-2.0	0.10-0.14	>7.8	2-8	Low------------	0.32		
Delp--------------	0-5	2-8	>6.0	0.05-0.09	7.9-9.0	<2	Low------------	0.15	5	1
	5-19	5-15	2.0-6.0	0.09-0.15	>8.4	<4	Low------------	0.20		
	19-60	4-8	6.0-20	0.07-0.10	>8.4	<4	Low------------	0.15		
Playas.										
731----------------- Hunewill	0-3	5-15	2.0-6.0	0.09-0.12	6.6-7.3	>2	Low------------	0.24	1	3
	3-13	25-35	0.2-0.6	0.12-0.15	6.6-7.3	<2	Low------------	0.10		
	13-18	5-15	0.6-2.0	0.08-0.11	6.6-7.3	<2	Low------------	0.15		
	18-60	0-2	6.0-20	0.04-0.05	6.6-7.3	<2	Low------------	0.02		
732, 733----------- Hunewill	0-3	10-20	0.6-2.0	0.14-0.17	6.6-7.3	>2	Low------------	0.32	1	5
	3-13	25-35	0.2-0.6	0.12-0.15	6.6-7.3	<2	Low------------	0.10		
	13-18	5-15	0.6-2.0	0.08-0.11	6.6-7.3	<2	Low------------	0.15		
	18-60	0-2	6.0-20	0.04-0.05	6.6-7.3	<2	Low------------	0.02		
734, 735----------- Hunewill	0-3	4-8	2.0-6.0	0.05-0.08	6.6-7.3	<2	Low------------	0.10	1	5
	3-13	25-35	0.2-0.6	0.12-0.15	6.6-7.3	<2	Low------------	0.10		
	13-18	5-15	0.6-2.0	0.08-0.11	6.6-7.3	<2	Low------------	0.15		
	18-60	0-2	6.0-20	0.04-0.05	6.6-7.3	<2	Low------------	0.02		
741*:										
Wedertz-----------	0-9	8-15	2.0-6.0	0.08-0.13	6.1-7.3	<2	Low------------	0.17	5	3
	9-28	20-30	0.2-0.6	0.17-0.19	6.1-7.3	<2	Moderate------	0.24		
	28-60	10-18	0.2-0.6	0.08-0.13	6.6-9.0	<2	Low------------	0.17		
Wellington--------	0-4	10-18	2.0-6.0	0.08-0.12	6.1-7.3	<2	Low------------	0.24	2	4
	4-15	18-35	0.2-0.6	0.17-0.19	6.1-7.3	<2	Moderate------	0.28		
	15-26	---	---	---	---	---	--------------	----		
	26-60	5-15	0.6-2.0	0.13-0.17	7.9-9.0	<4	Low------------	0.43		
Saralegui---------	0-5	3-10	2.0-6.0	0.10-0.12	6.1-7.3	<2	Low------------	0.20	5	3
	5-32	10-15	2.0-6.0	0.09-0.12	6.6-7.8	<2	Low------------	0.17		
	32-60	2-5	6.0-20	0.06-0.08	6.6-9.0	<2	Low------------	0.10		
742*, 743*:										
Wedertz-----------	0-9	8-15	2.0-6.0	0.08-0.13	6.1-7.3	<2	Low------------	0.17	5	3
	9-28	20-30	0.2-0.6	0.17-0.19	6.1-7.3	<2	Moderate------	0.24		
	28-60	10-18	0.2-0.6	0.08-0.13	6.6-9.0	<2	Low------------	0.17		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
742*, 743*:										
Wellington	0-4 4-15 15-26 26-60	10-18 18-35 --- 5-15	2.0-6.0 0.2-0.6 --- 0.6-2.0	0.08-0.12 0.17-0.19 --- 0.13-0.17	6.1-7.3 6.1-7.3 --- 7.9-9.0	<2 <2 --- <4	Low Moderate --- Low	0.24 0.28 ---- 0.43	2	4
744*:										
Wedertz	0-9 9-28 28-60	8-15 20-30 10-18	2.0-6.0 0.2-0.6 0.2-0.6	0.08-0.13 0.17-0.19 0.08-0.13	6.1-7.3 6.1-7.3 6.6-9.0	<2 <2 <2	Low Moderate Low	0.17 0.24 0.17	5	3
Saralegui	0-4 4-36 36-61	3-10 10-15 2-5	2.0-6.0 2.0-6.0 6.0-20	0.10-0.12 0.09-0.12 0.06-0.08	6.1-7.3 6.6-7.8 6.6-9.0	<2 <2 <2	Low Low Low	0.20 0.17 0.10	5	3
Wellington	0-4 4-15 15-26 26-60	10-18 18-35 --- 5-15	2.0-6.0 0.2-0.6 --- 0.6-2.0	0.08-0.12 0.17-0.19 --- 0.13-0.17	6.1-7.3 6.1-7.3 --- 7.9-9.0	<2 <2 --- <4	Low Moderate --- Low	0.24 0.28 ---- 0.43	2	4
746*:										
Wellsed	0-6 6-15 15-35 35-50 50-60	2-6 20-35 3-10 --- 5-10	6.0-20 0.2-0.6 6.0-20 --- 2.0-6.0	0.04-0.06 0.12-0.15 0.05-0.07 --- 0.07-0.09	6.1-7.3 7.4-9.0 >8.4 --- >8.4	<2 <4 <4 --- <4	Low Moderate Low --- Low	0.15 0.15 0.15 ---- 0.17	2	2
Wedlar	0-6 6-14 14-37 37-60	2-8 15-20 30-40 5-20	6.0-20 0.6-2.0 0.06-0.2 2.0-6.0	0.06-0.08 0.15-0.18 0.13-0.16 0.06-0.10	6.1-7.3 6.6-7.8 6.6-7.8 6.6-8.4	<2 <2 <2 <2	Low Moderate High Low	0.17 0.32 0.20 0.17	5	2
751 Malpais	0-3 3-25 25-60	5-15 10-18 10-18	2.0-6.0 2.0-6.0 2.0-6.0	0.04-0.07 0.10-0.12 0.07-0.10	6.6-7.3 6.6-8.4 7.9-9.0	<2 <4 <4	Low Low Low	0.15 0.10 0.10	5	4
753 Malpais	0-10 10-25 25-60	5-15 10-18 10-18	2.0-6.0 2.0-6.0 2.0-6.0	0.05-0.08 0.06-0.09 0.06-0.09	6.6-7.3 6.6-8.4 7.9-9.0	<2 <2 <2	Low Low Low	0.20 0.20 0.20	5	4
754*:										
Malpais (gravelly sandy loam)	0-3 3-25 25-60	5-15 10-18 10-18	2.0-6.0 2.0-6.0 2.0-6.0	0.04-0.07 0.10-0.12 0.07-0.10	6.6-7.3 7.9-8.4 7.9-9.0	<2 <4 <4	Low Low Low	0.15 0.10 0.10	5	4
Malpais (stony sandy loam)	0-3 3-25 25-60	5-15 10-18 10-18	2.0-6.0 2.0-6.0 2.0-6.0	0.05-0.08 0.06-0.09 0.06-0.09	6.6-7.3 6.6-8.4 7.9-9.0	<2 <2 <2	Low Low Low	0.20 0.20 0.20	5	4
755*:										
Malpais	0-3 3-25 25-60	5-15 10-18 10-18	2.0-6.0 2.0-6.0 2.0-6.0	0.04-0.07 0.10-0.12 0.07-0.10	6.6-7.3 7.9-8.4 7.9-9.0	<2 <4 <4	Low Low Low	0.15 0.10 0.10	5	4
Yerington	0-8 8-60	0-4 2-5	6.0-20 6.0-20	0.08-0.12 0.07-0.12	7.4-8.4 >8.4	<2 <2	Low Low	0.17 0.20	5	2
761, 762, 763, 764 Yerington	0-8 8-60	0-4 2-5	6.0-20 6.0-20	0.08-0.12 0.07-0.12	7.4-8.4 >8.4	<2 <2	Low Low	0.17 0.20	5	2
765, 766, 767 Yerington	0-8 8-60	2-5 2-5	2.0-6.0 6.0-20	0.07-0.10 0.07-0.12	7.4-8.4 >8.4	<2 <2	Low Low	0.20 0.20	5	4
771*:										
Biddleman (gravelly sandy loam)	0-3 3-9 9-60	8-15 20-30 2-10	2.0-6.0 0.2-0.6 >20	0.08-0.11 0.12-0.14 0.03-0.05	7.9-9.0 7.9-9.0 7.9-9.0	2-4 2-4 <2	Low Moderate Low	0.32 0.37 0.10	1	4

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
771*:										
Biddleman-------	0-3	8-15	6.0-20	0.08-0.11	7.9-9.0	2-4	Low-----------	0.32	1	8
(very stony	3-9	20-30	0.2-0.6	0.12-0.14	7.9-9.0	2-4	Moderate-----	0.37		
sandy loam)	9-60	2-10	>20	0.03-0.05	7.9-9.0	<2	Low-----------	0.10		
781--------------	0-2	5-15	2.0-6.0	0.05-0.08	7.4-9.0	<4	Low-----------	0.10	1	8
Celeton	2-9	5-15	6.0-20	0.04-0.06	7.4-9.0	<2	Low-----------	0.24		
	9-60	---	---	---	---	---	-------------	----		
782*:										
Weena-----------	0-7	18-27	0.6-2.0	0.13-0.15	6.6-9.0	<4	Moderate-----	0.55	1	6
	7-17	---	---	---	---	---	-------------	----		
	17	---	---	---	---	---	-------------	----		
Malpais---------	0-10	5-15	2.0-6.0	0.05-0.08	6.6-7.3	<2	Low-----------	0.20	5	4
	10-25	10-18	2.0-6.0	0.06-0.09	6.6-8.4	<2	Low-----------	0.20		
	25-60	10-18	2.0-6.0	0.06-0.09	7.9-9.0	<2	Low-----------	0.20		
791*:										
Plex------------	0-4	10-15	0.6-2.0	0.11-0.13	6.1-7.3	<2	Low-----------	0.24	1	6
	4-12	18-27	0.6-2.0	0.08-0.10	6.1-7.3	<2	Low-----------	0.17		
	12	---	---	---	---	---	-------------	----		
Duco------------	0-4	10-20	0.6-2.0	0.07-0.08	6.1-7.8	<2	Low-----------	0.24	1	8
	4-19	27-35	0.2-0.6	0.08-0.10	6.1-7.8	<2	Moderate-----	0.24		
	19	---	---	---	---	---	-------------	----		
792*:										
Pirouette-------	0-4	10-18	0.6-2.0	0.07-0.09	7.9-9.0	<2	Low-----------	0.24	1	8
	4-14	28-35	0.2-0.6	0.08-0.10	7.9-9.0	4-8	Moderate-----	0.24		
	14-23	---	---	---	---	---	-------------	----		
	23	---	---	---	---	---	-------------	----		
Osobb-----------	0-4	12-18	2.0-6.0	0.05-0.07	7.4-9.0	<2	Low-----------	0.32	1	8
	4-11	12-18	2.0-6.0	0.05-0.07	>7.8	2-4	Low-----------	0.24		
	11-12	---	---	---	---	---	-------------	----		
	12	---	---	---	---	---	-------------	----		
Rock outcrop.										
793--------------	0-4	10-18	0.6-2.0	0.07-0.09	7.9-9.0	<2	Low-----------	0.15	1	8
Pirouette	4-18	28-35	0.2-0.6	0.08-0.10	7.9-9.0	4-8	Moderate-----	0.24		
	18-23	---	---	---	---	---	-------------	----		
	23	---	---	---	---	---	-------------	----		
802*:										
Loomer----------	0-4	15-25	0.6-2.0	0.09-0.11	6.6-7.8	<2	Low-----------	0.10	1	8
	4-15	35-50	0.06-0.2	0.08-0.10	6.6-7.8	<2	Moderate-----	0.05		
	15	---	---	---	---	---	-------------	----		
Zephan----------	0-2	10-15	0.6-2.0	0.11-0.13	5.6-7.3	<2	Low-----------	0.10	2	8
	2-37	35-45	0.06-0.2	0.10-0.13	5.6-6.5	<2	High---------	0.10		
	37	---	---	---	---	---	-------------	----		
Olac------------	0-4	15-22	0.6-2.0	0.07-0.09	6.1-7.8	<2	Low-----------	0.10	1	8
	4-14	23-30	0.6-2.0	0.05-0.07	6.1-7.8	<2	Low-----------	0.05		
	14	---	---	---	---	---	-------------	----		
803*:										
Loomer----------	0-4	15-25	0.6-2.0	0.09-0.11	6.6-7.8	<2	Low-----------	0.10	1	8
(15 to 30	4-15	35-50	0.06-0.2	0.08-0.10	6.6-7.8	<2	Moderate-----	0.05		
percent	15	---	---	---	---	---	-------------	----		
slopes										
Loomer----------	0-4	15-25	0.6-2.0	0.09-0.11	6.6-7.8	<2	Low-----------	0.10	1	8
(30 to 50	4-15	35-50	0.06-0.2	0.08-0.10	6.6-7.8	<2	Moderate-----	0.05		
percent	15	---	---	---	---	---	-------------	----		
slopes)										

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
811*:										
Trid (30 to 50 percent slopes)	0-4	7-10	2.0-6.0	0.12-0.14	6.6-7.3	<2	Low	0.20	2	3
	4-23	25-30	0.2-0.6	0.08-0.09	6.6-7.3	<2	Moderate	0.10		
	23-48	---	---	---	---	---	-------------	----		
Trid (4 to 15 percent slopes)	0-4	1-3	6.0-20	0.04-0.06	6.6-7.3	<2	Low	0.15	2	1
	4-23	25-30	0.2-0.6	0.08-0.09	6.6-7.3	<2	Moderate	0.10		
	23-48	---	---	---	---	---	-------------	----		
Drit	0-9	7-15	2.0-6.0	0.10-0.12	6.1-7.3	<2	Low	0.15	5	3
	9-25	7-15	2.0-6.0	0.08-0.10	6.1-7.3	<2	Low	0.10		
	25-60	8-18	2.0-6.0	0.06-0.08	6.1-7.3	<2	Low	0.10		
812*:										
Trid	0-4	18-25	0.6-2.0	0.08-0.09	6.6-7.3	<2	Moderate	0.15	2	5
	4-23	25-30	0.2-0.6	0.04-0.06	6.6-7.3	<2	Moderate	0.10		
	23	---	---	---	---	---	-------------	----		
Holoc	0-8	7-10	2.0-6.0	0.08-0.10	6.1-7.3	<2	Low	0.10	1	8
	8-17	10-18	0.6-2.0	0.06-0.07	6.1-7.3	<2	Low	0.10		
	17	---	---	---	---	---	-------------	----		
Drit	0-9	7-15	2.0-6.0	0.10-0.12	6.1-7.3	<2	Low	0.15	5	3
	9-25	7-15	2.0-6.0	0.08-0.10	6.1-7.3	<2	Low	0.10		
	25-60	8-18	2.0-6.0	0.06-0.08	6.1-7.3	<2	Low	0.10		
821*. Badland										
822*. Dumps										
823*. Gypsum land										
824*, 825*. Pits										
826*. Playas										
827*. Slickens										
831*:										
Ister	0-17	10-15	2.0-6.0	0.07-0.09	6.6-7.3	<2	Low	0.10	2	8
	17-38	25-35	0.2-0.6	0.09-0.14	6.6-7.8	<2	Moderate	0.10		
	38	---	---	---	---	---	-------------	----		
Hyloc	0-5	14-20	2.0-6.0	0.06-0.10	6.1-7.3	<2	Low	0.10	1	8
	5-18	40-55	0.06-0.2	0.12-0.15	6.6-7.3	<2	High	0.24		
	18-24	---	---	---	---	---	-------------	----		
	24	---	---	---	---	---	-------------	----		
Lunder	0-7	18-27	0.6-2.0	0.12-0.14	6.6-7.3	<2	Low	0.10	1	8
	7-16	50-60	0.06-0.2	0.11-0.14	6.6-7.3	<2	High	0.24		
	16-31	---	---	---	---	---	-------------	----		
	31-60	5-10	0.2-0.6	0.02-0.05	>7.8	2-4	Low	0.05		
841*:										
Bradshaw	0-15	15-20	0.6-2.0	0.05-0.08	6.6-7.3	<2	Low	0.10	3	8
	15-43	12-18	2.0-6.0	0.05-0.07	6.6-7.3	<2	Low	0.10		
	43	---	---	---	---	---	-------------	----		
Hartig	0-14	8-15	2.0-6.0	0.04-0.08	6.1-7.3	<2	Low	0.10	5	5
	14-60	8-18	0.6-2.0	0.04-0.08	6.1-7.3	<2	Low	0.28		
	60	---	---	---	---	---	-------------	----		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
851*:										
Tenpin----------	0-7	10-20	0.6-2.0	0.08-0.11	6.1-7.3	<2	Low-----------	0.10	5	7
	7-33	35-45	0.06-0.2	0.05-0.08	6.6-7.3	<2	Moderate-----	0.05		
	33-60	15-25	0.6-2.0	0.04-0.07	6.6-7.3	<2	Low-----------	0.05		
Shree-----------	0-10	15-25	0.6-2.0	0.10-0.12	6.1-7.8	<2	Low-----------	0.10	5	8
	10-26	27-35	0.2-0.6	0.06-0.09	6.6-7.8	<2	Moderate-----	0.10		
	26-60	10-25	2.0-6.0	0.05-0.07	6.6-7.8	<2	Low-----------	0.15		
861-------------- Shree	0-10	15-25	0.6-2.0	0.10-0.12	6.1-7.8	<2	Low-----------	0.10	5	8
	10-26	27-35	0.2-0.6	0.06-0.09	6.6-7.8	<2	Moderate-----	0.10		
	26-60	10-25	2.0-6.0	0.05-0.07	6.6-7.8	<2	Low-----------	0.15		
871*:										
Nall------------	0-8	4-10	2.0-6.0	0.06-0.08	6.1-7.3	<2	Low-----------	0.20	1	4
	8-20	---	---	---	---	---	-------------	----		
	20	---	---	---	---	---	-------------	----		
Luppino---------	0-7	5-15	2.0-6.0	0.08-0.10	5.6-7.3	<2	Low-----------	0.24	1	4
	7-12	18-30	0.2-0.6	0.15-0.18	5.6-7.3	<2	Moderate-----	0.20		
	12-23	---	---	---	---	---	-------------	----		
	23	---	---	---	---	---	-------------	----		
Hotsprings------	0-4	2-4	6.0-20	0.05-0.08	6.6-7.3	<2	Low-----------	0.20	5	2
	4-60	2-4	6.0-20	0.04-0.07	6.6-7.3	<2	Low-----------	0.20		
881*:										
Ravenell Variant	0-7	15-20	2.0-6.0	0.12-0.14	6.6-7.8	<2	Low-----------	0.28	1	4
	7-15	35-50	0.06-0.2	0.14-0.17	6.6-7.8	<2	High----------	0.20		
	15	---	---	---	---	---	-------------	----		
Devils Variant--	0-10	10-18	0.6-2.0	0.12-0.14	6.1-7.3	<2	Low-----------	0.20	2	6
	10-30	25-35	0.2-0.6	0.13-0.15	6.1-7.3	<2	Moderate-----	0.17		
	30	---	---	---	---	---	-------------	----		
891*, 892*:										
Berit-----------	0-2	5-10	6.0-20	0.04-0.06	6.1-7.3	<2	Low-----------	0.05	1	5
	2-5	25-35	0.2-0.6	0.07-0.10	6.1-7.3	<2	Low-----------	0.10		
	5-60	---	---	---	---	---	-------------	----		
Shoken----------	0-5	2-8	6.0-20	0.08-0.11	6.6-7.3	<2	Low-----------	0.15	1	5
	5-26	---	---	---	---	---	-------------	----		
	26-31	---	---	---	---	---	-------------	----		
893*:										
Berit-----------	0-3	5-10	6.0-20	0.04-0.06	6.1-7.3	<2	Low-----------	0.05	1	5
	3-7	25-35	0.2-0.6	0.07-0.10	6.1-7.3	<2	Low-----------	0.10		
	7-60	---	---	---	---	---	-------------	----		
Saralegui-------	0-5	1-5	6.0-20	0.05-0.07	6.1-7.3	<2	Low-----------	0.10	5	1
	5-32	10-15	2.0-6.0	0.09-0.12	6.6-7.8	<2	Low-----------	0.17		
	32-60	2-5	6.0-20	0.06-0.08	6.6-9.0	<2	Low-----------	0.10		
911*:										
Pulstone Variant	0-5	12-18	0.6-2.0	0.12-0.14	6.1-7.3	<2	Low-----------	0.24	2	8
	5-25	35-50	0.06-0.2	0.14-0.16	6.1-7.3	<2	High----------	0.28		
	25	---	---	---	---	---	-------------	----		
Devils----------	0-7	15-20	0.6-2.0	0.10-0.14	6.1-7.3	<2	Low-----------	0.20	2	6
	7-22	27-35	0.06-0.2	0.14-0.17	6.1-7.3	<2	Moderate-----	0.28		
	22-30	---	---	---	---	---	-------------	----		
	30	---	---	---	---	---	-------------	----		
Glean-----------	0-24	8-18	2.0-6.0	0.07-0.11	6.1-7.3	<2	Low-----------	0.15	3	8
	24-51	8-18	2.0-6.0	0.06-0.09	6.1-7.3	<2	Low-----------	0.10		
	51	---	---	---	---	---	-------------	----		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
921*:										
Glean	0-14	8-18	2.0-6.0	0.08-0.12	6.1-7.3	<2	Low	0.15	5	8
	14-60	8-18	2.0-6.0	0.06-0.09	6.1-7.3	<2	Low	0.10		
Devils	0-7	15-20	0.6-2.0	0.10-0.14	6.1-7.3	<2	Low	0.20	2	6
	7-22	27-35	0.06-0.2	0.14-0.17	6.1-7.3	<2	Moderate	0.28		
	22-30	---	---	---	---	---	---	---		
	30	---	---	---	---	---	---	---		
922*:										
Glean	0-14	8-18	2.0-6.0	0.08-0.12	6.1-7.3	<2	Low	0.15	5	8
	14-51	8-18	2.0-6.0	0.06-0.09	6.1-7.3	<2	Low	0.10		
	51	---	---	---	---	---	---	---		
Devils	0-7	15-20	0.6-2.0	0.10-0.14	6.1-7.3	<2	Low	0.20	2	6
	7-22	27-35	0.06-0.2	0.14-0.17	6.1-7.3	<2	Moderate	0.28		
	22-30	---	---	---	---	---	---	---		
	30	---	---	---	---	---	---	---		
Rock outcrop.										
923*:										
Glean	0-14	8-18	2.0-6.0	0.06-0.10	6.1-7.3	<2	Low	0.10	5	8
	14-51	8-18	2.0-6.0	0.06-0.09	6.1-7.3	<2	Low	0.10		
	51	---	---	---	---	---	---	---		
Ticino	0-12	5-15	2.0-6.0	0.11-0.14	6.1-7.3	<2	Low	0.28	2	4
	12-28	18-35	0.6-2.0	0.14-0.17	6.1-7.3	<2	Moderate	0.37		
	28	---	---	---	---	---	---	---		
Hartig	0-14	8-15	2.0-6.0	0.04-0.08	6.1-7.3	<2	Low	0.10	5	5
	14-60	8-18	0.6-2.0	0.04-0.08	6.1-7.3	<2	Low	0.28		
	60	---	---	---	---	---	---	---		
932*:										
Shoken	0-5	2-8	6.0-20	0.08-0.11	6.6-7.3	<2	Low	0.15	1	5
	5-25	---	---	---	---	---	---	---		
	25	---	---	---	---	---	---	---		
Rock outcrop.										
951*:										
Koontz	0-2	5-15	2.0-6.0	0.06-0.09	6.1-7.8	<2	Low	0.15	2	8
	2-17	20-35	0.2-0.6	0.09-0.11	6.1-7.8	<2	Moderate	0.24		
	17	---	---	---	---	---	---	---		
Ravenell	0-3	15-20	0.6-2.0	0.08-0.12	6.6-7.8	<2	Low	0.15	1	8
	3-7	35-45	0.06-0.2	0.08-0.10	6.6-7.8	<2	Moderate	0.10		
	7-11	---	---	---	---	---	---	---		
	11	---	---	---	---	---	---	---		
Haar	0-6	10-18	0.6-2.0	0.05-0.09	6.6-8.4	<2	Low	0.28	1	6
	6	---	---	---	---	---	---	---		
961 Luppino	0-7	5-15	2.0-6.0	0.08-0.10	5.6-7.3	<2	Low	0.24	1	4
	7-12	20-30	0.2-0.6	0.15-0.18	5.6-7.3	<2	Moderate	0.20		
	12-21	---	---	---	---	---	---	---		
	21	---	---	---	---	---	---	---		
971*:										
Minneha	0-5	6-15	2.0-6.0	0.07-0.08	6.1-7.8	<2	Low	0.10	1	8
	5-18	6-15	2.0-6.0	0.05-0.07	6.1-7.8	<2	Low	0.10		
	18	---	---	---	---	---	---	---		
Drit	0-9	7-15	2.0-6.0	0.06-0.08	6.6-7.3	<2	Low	0.10	5	8
	9-60	10-18	2.0-6.0	0.06-0.08	6.6-7.3	<2	Low	0.10		
Rock outcrop.										

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
972*:										
Minneha----------	0-5	6-15	2.0-6.0	0.07-0.08	6.1-7.8	<2	Low-----------	0.10	1	8
	5-18	6-15	2.0-6.0	0.05-0.07	6.1-7.8	<2	Low-----------	0.10		
	18	---	---	---	---	---	-------------	----		
Berit------------	0-3	18-27	0.6-2.0	0.09-0.11	6.1-7.3	<2	Low-----------	0.05	1	8
	3-7	25-35	0.2-0.6	0.07-0.10	6.1-7.3	<2	Low-----------	0.15		
	7	---	---	---	---	---	-------------	----		
Wilo-------------	0-7	12-18	2.0-6.0	0.07-0.09	6.1-7.3	<2	Low-----------	0.15	1	4
	7-18	35-45	0.06-0.2	0.14-0.17	6.1-7.3	<2	High----------	0.15		
	18	---	---	---	---	---	-------------	----		
981-------------- Ravenell	0-3	15-20	0.6-2.0	0.08-0.12	6.6-7.8	<2	Low-----------	0.15	1	8
	3-7	35-45	0.06-0.2	0.08-0.10	6.6-7.8	<2	Moderate------	0.10		
	7-11	---	---	---	---	---	-------------	----		
	11	---	---	---	---	---	-------------	----		
982*:										
Ravenell---------	0-3	15-20	0.6-2.0	0.08-0.12	6.6-7.8	<2	Low-----------	0.15	1	8
	3-7	35-45	0.06-0.2	0.08-0.10	6.6-7.8	<2	Moderate------	0.10		
	7-11	---	---	---	---	---	-------------	----		
	11	---	---	---	---	---	-------------	----		
Haar-------------	0-6	10-18	0.6-2.0	0.05-0.09	6.6-8.4	<2	Low-----------	0.28	1	6
	6	---	---	---	---	---	-------------	----		
Rock outcrop.										
991*:										
Roloe------------	0-9	7-10	2.0-6.0	0.08-0.10	6.1-7.3	<2	Low-----------	0.10	1	8
	9-17	10-18	0.6-2.0	0.06-0.07	6.1-7.3	<2	Low-----------	0.10		
	17	---	---	---	---	---	-------------	----		
Drit-------------	0-20	7-15	2.0-6.0	0.10-0.12	6.6-7.3	<2	Low-----------	0.10	5	5
	20-60	10-18	2.0-6.0	0.06-0.08	6.6-7.3	<2	Low-----------	0.10		
1001------------- Rowel	0-6	5-15	2.0-6.0	0.07-0.10	6.6-7.3	<2	Low-----------	0.24	1	5
	6-14	40-55	0.06-0.2	0.09-0.13	6.6-7.8	<2	Moderate------	0.15		
	14	---	---	---	---	---	-------------	----		
1002*:										
Rowel------------	0-6	5-15	2.0-6.0	0.07-0.10	6.6-7.3	<2	Low-----------	0.24	1	5
	6-14	40-55	0.06-0.2	0.09-0.13	6.6-7.8	<2	Moderate------	0.15		
	14	---	---	---	---	---	-------------	----		
Rock outcrop.										
1011------------- Smedley	0-2	5-12	2.0-6.0	0.07-0.10	6.6-7.8	<2	Low-----------	0.20	1	6
	2-18	35-45	0.06-0.2	0.16-0.19	6.6-8.4	<2	High----------	0.28		
	18-43	---	---	---	---	<2	-------------	----		
	43-60	6-10	2.0-6.0	0.05-0.09	7.9-9.0	<2	Low-----------	0.24		
1012------------- Smedley	0-2	5-12	2.0-6.0	0.07-0.10	6.6-7.8	<2	Low-----------	0.24	1	5
	2-18	35-45	0.06-0.2	0.16-0.19	6.6-8.4	<2	High----------	0.28		
	18-43	---	---	---	---	<2	-------------	----		
	43-60	6-10	2.0-6.0	0.05-0.09	7.9-9.0	<2	Low-----------	0.24		
1013*:										
Smedley---------- (2 to 4 percent slopes)	0-2	5-12	2.0-6.0	0.07-0.10	6.6-7.8	<2	Low-----------	0.20	1	6
	2-18	35-45	0.06-0.2	0.16-0.19	6.6-8.4	<2	High----------	0.28		
	18-43	---	---	---	---	<2	-------------	----		
	43-60	6-10	2.0-6.0	0.05-0.09	7.9-9.0	<2	Low-----------	0.24		
Smedley---------- (4 to 15 percent slopes)	0-2	5-12	2.0-6.0	0.07-0.10	6.6-7.8	<2	Low-----------	0.24	1	5
	2-18	35-45	0.06-0.2	0.16-0.19	6.6-8.4	<2	High----------	0.28		
	18-43	---	---	---	---	<2	-------------	----		
	43-60	6-10	2.0-6.0	0.05-0.09	7.9-9.0	<2	Low-----------	0.24		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
1014*:										
Smedley----------- (15 to 30 percent slopes)	0-2	5-12	2.0-6.0	0.07-0.10	6.6-7.8	<2	Low-----------	0.24	1	5
	2-18	35-45	0.06-0.2	0.16-0.19	6.6-8.4	<2	High----------	0.28		
	18-43	---	---	---	---	<2	-------------	----		
	43-60	6-10	2.0-6.0	0.05-0.09	7.9-9.0	<2	Low-----------	0.24		
Smedley----------- (4 to 15 percent slopes)	0-2	5-12	2.0-6.0	0.07-0.10	6.6-7.8	<2	Low-----------	0.20	1	6
	2-18	35-45	0.06-0.2	0.16-0.19	6.6-8.4	<2	High----------	0.28		
	18-43	---	---	---	---	<2	-------------	----		
	43-60	6-10	2.0-6.0	0.05-0.09	7.9-9.0	<2	Low-----------	0.24		
1021-------------- Springmeyer	0-10	5-15	2.0-6.0	0.11-0.13	6.1-7.3	<2	Low-----------	0.24	5	3
	10-34	25-35	0.2-0.6	0.14-0.16	6.1-7.3	<2	Moderate------	0.20		
	34-60	18-25	0.2-2.0	0.11-0.13	6.6-8.4	<2	Moderate------	0.20		
1031*:										
Burnborough------	0-10	10-25	0.6-2.0	0.08-0.09	6.1-7.3	<2	Moderate------	0.10	5	8
	10-60	18-35	0.6-2.0	0.08-0.11	6.1-7.3	<2	Moderate------	0.15		
Olean------------	0-14	8-18	2.0-6.0	0.07-0.11	6.1-7.3	<2	Low-----------	0.15	3	8
	14-60	8-18	2.0-6.0	0.06-0.09	6.1-7.3	<2	Low-----------	0.10		
	51	---	---	---	---	---	-------------	----		
1041*:										
Whichman---------	0-15	8-12	2.0-6.0	0.06-0.08	6.6-7.8	<2	Low-----------	0.05	3	5
	15-33	10-18	2.0-6.0	0.05-0.07	6.6-7.8	<2	Low-----------	0.05		
	33-56	8-12	2.0-6.0	0.04-0.06	6.6-7.8	<2	Low-----------	0.05		
	56	---	---	---	---	---	-------------	----		
Iater------------	0-17	10-15	2.0-6.0	0.08-0.10	6.6-7.3	<2	Low-----------	0.10	2	8
	17-38	25-35	0.2-0.6	0.09-0.14	6.6-7.8	<2	Moderate------	0.10		
	38	---	---	---	---	---	-------------	----		
Rock outcrop.										
1051-------------- Zyzul	0-2	5-10	2.0-6.0	0.06-0.09	6.6-7.3	<2	Low-----------	0.32	1	5
	2-6	25-35	0.2-0.6	0.04-0.08	6.6-7.8	<2	Moderate------	0.10		
	6-40	---	---	---	---	---	-------------	----		
1072-------------- Hawsley	0-8	0-5	>20	0.06-0.08	6.6-8.4	<2	Low-----------	0.10	5	1
	8-60	0-5	>20	0.06-0.08	7.4-9.0	<2	Low-----------	0.10		
1073*:										
Hawsley----------	0-8	0-5	>20	0.06-0.08	6.6-8.4	<2	Low-----------	0.10	5	1
	8-60	0-5	>20	0.06-0.08	7.4-9.0	<2	Low-----------	0.10		
Gamgee-----------	0-4	6-10	6.0-20.0	0.06-0.09	7.9-9.0	<2	Low-----------	0.10	5	6
	4-17	25-35	0.06-0.2	0.13-0.15	7.9-9.0	4-8	Moderate------	0.43		
	17-60	10-20	0.2-0.6	0.08-0.10	7.9-9.0	4-8	Low-----------	0.37		
1074-------------- Hawsley	0-8	4-8	6.0-20	0.06-0.08	6.6-7.3	<2	Low-----------	0.20	5	2
	8-50	0-5	>20	0.06-0.08	7.4-9.0	<2	Low-----------	0.10		
	50-60	18-30	0.06-0.2	0.16-0.17	>9.0	>16	Moderate------	0.49		
1075*:										
Hawsley----------	0-8	4-8	6.0-20	0.06-0.08	6.6-7.3	<2	Low-----------	0.20	5	2
	8-50	0-5	>20	0.06-0.08	7.4-9.0	<2	Low-----------	0.10		
	50-60	18-30	0.06-0.2	0.16-0.17	>9.0	>16	Moderate------	0.49		
Playas.										
1081-------------- Stucky	0-6	8-15	0.6-2.0	0.05-0.17	6.6-7.3	<2	Low-----------	0.05	5	8
	6-20	27-35	0.2-0.6	0.06-0.09	6.6-7.3	<2	Low-----------	0.05		
	20-60	12-25	0.2-0.6	0.06-0.09	6.6-8.4	<2	Low-----------	0.05		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
1082*:										
Stucky---------- (8 to 15 percent slopes)	0-6	8-15	0.6-2.0	0.07-0.09	6.6-7.3	<2	Low----------	0.10	5	8
	6-20	27-35	0.2-0.6	0.06-0.09	6.6-7.3	<2	Low----------	0.05		
	20-60	12-25	0.2-0.6	0.06-0.09	6.6-8.4	<2	Low----------	0.05		
Stucky---------- (15 to 30 percent slopes)	0-6	8-15	0.6-2.0	0.07-0.09	6.6-7.3	<2	Low----------	0.10	5	8
	6-20	27-35	0.2-0.6	0.06-0.09	6.6-7.3	<2	Low----------	0.05		
	20-60	12-25	0.2-0.6	0.06-0.09	6.6-8.4	<2	Low----------	0.05		
1083*:										
Stucky----------	0-6	8-15	0.6-2.0	0.05-0.17	6.6-7.3	<2	Low----------	0.05	5	8
	6-20	27-35	0.2-0.6	0.06-0.09	6.6-7.3	<2	Low----------	0.05		
	20-60	12-25	0.2-0.6	0.06-0.09	6.6-8.4	<2	Low----------	0.05		
Hunewill--------	0-3	10-20	0.6-2.0	0.14-0.17	6.6-7.3	>2	Low----------	0.32	1	5
	3-13	25-35	0.2-0.6	0.12-0.15	6.6-7.3	<2	Low----------	0.10		
	13-18	5-15	0.6-2.0	0.08-0.11	6.6-7.3	<2	Low----------	0.15		
	18-60	0-2	6.0-20	0.04-0.05	6.6-7.3	<2	Low----------	0.02		
Veta------------	0-6	5-15	2.0-6.0	0.04-0.08	6.6-7.3	<2	Low----------	0.10	5	8
	6-18	5-15	2.0-6.0	0.04-0.08	6.6-7.8	<2	Low----------	0.10		
	18-60	2-15	2.0-6.0	0.04-0.08	6.6-8.4	<2	Low----------	0.10		
1091*:										
Glean Variant---	0-11	0-3	6.0-20	0.05-0.07	6.6-7.3	<2	Low----------	0.15	2	3
	11-31	0-2	>20.0	0.04-0.06	6.6-7.3	<2	Low----------	0.10		
	31	---	---	---	---	---	------------	----		
Hartig Variant--	0-2	0-4	2.0-6.0	0.04-0.06	6.1-7.3	<2	Low----------	0.02	1	4
	2-16	0-8	2.0-6.0	0.05-0.07	6.1-7.3	<2	Low----------	0.05		
	16	---	---	---	---	---	------------	----		
Rubble land.										
1103*:										
Mirkwood--------	0-7	5-15	2.0-6.0	0.07-0.10	6.6-9.0	<2	Low----------	0.10	1	7
	7-14	25-35	0.2-0.6	0.10-0.13	6.6-9.0	<2	Moderate-----	0.28		
	14	---	---	---	---	---	------------	----		
Nemico----------	0-6	5-10	2.0-6.0	0.08-0.10	7.4-9.0	<2	Low----------	0.17	1	4
	6-18	35-45	<0.06	0.13-0.14	7.9-9.0	4-8	High---------	0.15		
	18-21	---	---	---	---	---	------------	----		
	21	---	---	---	---	---	------------	----		
1110*:										
Surgem----------	0-6	10-15	2.0-6.0	0.05-0.07	6.1-7.3	<2	Low----------	0.10	2	8
	6-22	35-50	0.06-0.2	0.10-0.12	6.1-7.8	<2	Moderate-----	0.20		
	22-30	---	---	---	---	---	------------	----		
Olac------------	0-4	15-22	0.6-6.0	0.07-0.09	6.1-7.8	<2	Low----------	0.10	1	8
	4-14	23-30	0.6-2.0	0.05-0.07	6.1-7.8	<2	Low----------	0.05		
	14	---	---	---	---	---	------------	----		
Cagle-----------	0-2	20-26	0.6-2.0	0.10-0.11	6.1-7.8	<2	Low----------	0.24	3	8
	2-30	35-50	0.06-0.2	0.13-0.15	6.1-7.8	<2	High---------	0.24		
	30	---	---	---	---	---	------------	----		
1121*:										
Duco------------	0-4	10-20	0.6-2.0	0.07-0.08	6.1-7.8	<2	Low----------	0.24	1	8
	4-19	27-35	0.2-0.6	0.08-0.10	6.1-7.8	<2	Moderate-----	0.24		
	19	---	---	---	---	---	------------	----		
Nosrac----------	0-12	18-25	0.6-2.0	0.12-0.14	6.1-7.3	<2	Low----------	0.28	5	8
	12-45	25-35	0.2-0.6	0.10-0.12	6.1-7.3	<2	Low----------	0.32		
	45-60	18-30	0.6-2.0	0.09-0.10	6.1-7.3	<2	Moderate-----	0.28		
1131------------ Gamgee	0-4	3-8	6.0-20	0.04-0.06	7.9-9.0	<2	Low----------	0.10	5	2
	4-23	25-35	0.06-0.2	0.13-0.15	7.9-9.0	4-8	Moderate-----	0.32		
	23-60	18-30	0.2-0.6	0.08-0.10	7.9-9.0	4-8	Moderate-----	0.24		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group
	In	Pct	In/hr	In/in	pH	Mmhos/cm				
1141*:										
Old Camp	0-4	10-20	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.17	1	8
	4-14	25-35	0.2-0.6	0.08-0.11	6.6-9.0	<2	Moderate	0.15		
	14	---	---	---	---	---	---	---		
Mirkwood	0-4	10-18	0.6-2.0	0.09-0.11	6.6-7.8	<2	Low	0.15	1	8
	4-14	25-35	0.2-0.6	0.10-0.13	6.6-7.8	<2	Moderate	0.28		
	14	---	---	---	---	---	---	---		
Nemico	0-6	5-10	2.0-6.0	0.08-0.10	7.4-9.0	<2	Low	0.17	1	4
	6-18	35-45	<0.06	0.13-0.14	7.9-9.0	4-8	High	0.15		
	18-21	---	---	---	---	---	---	---		
	21	---	---	---	---	---	---	---		
1142*:										
Old Camp	0-4	10-20	2.0-6.0	0.11-0.13	6.6-7.8	<2	Low	0.17	1	8
	4-14	25-35	0.2-0.6	0.08-0.11	6.6-9.0	<2	Moderate	0.15		
	14	---	---	---	---	---	---	---		
Holbrook Variant	0-9	5-10	2.0-6.0	0.09-0.11	6.6-7.3	<2	Low	0.20	2	8
	9-35	5-10	2.0-6.0	0.09-0.11	6.6-7.3	<2	Low	0.20		
	35	---	---	---	---	---	---	---		
1143*:										
Old Camp	0-4	5-15	2.0-6.0	0.07-0.09	6.6-7.8	<2	Low	0.17	1	8
	4-14	25-35	0.2-0.6	0.08-0.11	6.6-9.0	<2	Moderate	0.15		
	14	---	---	---	---	---	---	---		
Reno Variant	0-11	4-8	2.0-6.0	0.05-0.08	6.6-7.3	<2	Low	0.15	1	5
	11-18	20-27	0.6-2.0	0.14-0.17	6.6-7.3	<2	Moderate	0.43		
	18-24	---	---	---	---	---	---	---		
	24	---	---	---	---	---	---	---		
Hyloc	0-3	14-20	0.6-2.0	0.14-0.16	6.1-7.3	<2	Low	0.17	1	6
	3-18	40-55	0.06-0.2	0.12-0.15	6.6-7.3	<2	High	0.24		
	18-24	---	---	---	---	---	---	---		
	24	---	---	---	---	---	---	---		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," and "apparent" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months
					Ft		
101, 102. Ackley	B	None	---	---	>6.0	---	---
103*:							
Ackley	B	None	---	---	>6.0	---	---
Ackley Variant	B	None	---	---	>6.0	---	---
121, 122. Appian	B	None	---	---	>6.0	---	---
123*:							
Appian	B	None	---	---	>6.0	---	---
Wabuska	C	Rare	---	---	2.5-3.5	Apparent	May-Jul
124*:							
Appian	B	None	---	---	>6.0	---	---
Delp	A	None	---	---	>6.0	---	---
141, 142. Bango	B	Rare	---	---	>6.0	---	---
151. Bluewing Variant	D	None	---	---	>6.0	---	---
161, 162. Bluewing	A	Occasional	Very brief	Jul-Sep	>6.0	---	---
171*:							
Cagle	C	None	---	---	>6.0	---	---
Noarac	B	None	---	---	>6.0	---	---
181, 182, 184, 185. Charlebois	B	Rare	---	---	>6.0	---	---
191*:							
Chill (8 to 15 percent slopes)	D	None	---	---	>6.0	---	---
Chill (15 to 30 percent slopes)	D	None	---	---	>6.0	---	---
201, 202, 204, 206, 207. Cleaver	D	None	---	---	>6.0	---	---
208*:							
Cleaver (2 to 4 percent slopes)	D	None	---	---	>6.0	---	---
Cleaver (4 to 15 percent slopes)	D	None	---	---	>6.0	---	---
209*:							
Cleaver (15 to 30 percent slopes)	D	None	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
209*:							
Cleaver (4 to 15 percent slopes)	D	None	---	---	>6.0	---	---
221, 223 Dalzell	C	None	---	---	3.5-6.0	Apparent	Mar-Jun
231*:							
Delp	A	None	---	---	>6.0	---	---
Lox	C	None	---	---	>6.0	---	---
232*:							
Delp	A	None	---	---	>6.0	---	---
Orizaba	C	Rare	---	---	>6.0	---	---
233 Delp	A	None	---	---	>6.0	---	---
241*:							
Devada	D	None	---	---	>6.0	---	---
Rock outcrop.							
242*:							
Devada	D	None	---	---	>6.0	---	---
Rock outcrop.							
251, 252 Dia	C	Rare	---	---	3.0-5.0	Apparent	May-Jul
253 Dia	B/D	Rare	---	---	1.0-2.0	Apparent	Mar-Jun
254*:							
Dia	B/D	Rare	---	---	1.0-2.0	Apparent	Mar-Jun
Dithod (clay loam, wet)	C	Rare	---	---	1.5-3.5	Apparent	Apr-Sep
Dithod (loam, saline-alkali)	C	Rare	---	---	1.5-3.5	Apparent	Apr-Sep
255*:							
Dia	C	Occasional	Brief to long	Jan-Dec	2.0-3.0	Apparent	May-Jul
Dithod	C	Frequent	Brief to long	Jan-Dec	2.0-3.0	Apparent	Jan-Dec
256*:							
Dia	C	Rare	---	---	3.0-5.0	Apparent	May-Jul
Sagouspe (sandy loam)	C	Rare	---	---	3.0-3.5	Apparent	Feb-Aug
Sagouspe (loamy sand)	C	Rare	---	---	3.0-3.5	Apparent	Feb-Aug
261 Dithod	C	Rare	---	---	3.0-5.0	Apparent	Dec-Aug
262 Dithod	C	Rare	---	---	3.0-5.0	Apparent	May-Jul
263, 264 Dithod	C	Rare	---	---	1.5-3.5	Apparent	Apr-Sep

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
265----- Dithod	C	Rare-----	---	---	3.0-5.0	Apparent	Dec-Aug
268----- Dithod	C	Rare-----	---	---	1.5-3.5	Apparent	Apr-Sep
269*:							
Dithod-----	C	Rare-----	---	---	3.0-5.0	Apparent	Dec-Aug
Sagouspe-----	C	Rare-----	---	---	3.0-3.5	Apparent	Feb-Aug
Dia-----	C	Rare-----	---	---	3.0-5.0	Apparent	May-Jul
271----- East Fork	C	Rare-----	---	---	3.5-5.0	Apparent	Dec-May
272----- East Fork	C	Occasional-----	Brief to long	Apr-Jun	3.5-5.0	Apparent	May-Jun
274----- East Fork	C	Rare-----	---	---	3.5-5.0	Apparent	Dec-May
275----- East Fork	C	Rare-----	---	---	3.0-5.0	Apparent	Apr-Jul
276----- East Fork	C	Rare-----	---	---	3.5-5.0	Apparent	Apr-Jul
277----- East Fork	C	Rare-----	---	---	3.5-5.0	Apparent	Dec-May
291, 292----- Fallon	C	Rare-----	---	---	3.5-5.0	Apparent	Apr-Sep
293----- Fallon	C	Frequent-----	Brief to long	Mar-Nov	3.5-5.0	Apparent	Apr-Sep
294----- Fallon	C	Rare-----	---	---	3.5-5.0	Apparent	Apr-Sep
295----- Fallon	C	Frequent-----	Brief to long	Mar-Nov	3.5-5.0	Apparent	Apr-Sep
301----- Fernley	C	Rare-----	---	---	2.0-4.0	Apparent	Apr-Sep
302----- Fernley	C	Rare-----	---	---	3.0-5.0	Apparent	Apr-Sep
311, 312----- Fulstone	D	None-----	---	---	>6.0	---	---
313*:							
Fulstone----- (4 to 15 percent slopes)	D	None-----	---	---	>6.0	---	---
Fulstone----- (15 to 30 percent slopes)	D	None-----	---	---	>6.0	---	---
314*:							
Fulstone----- (4 to 15 percent slopes)	D	None-----	---	---	>6.0	---	---
Reno-----	D	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
314*:							
Fulstone (15 to 30 percent slopes)	D	None	---	---	>6.0	---	---
315*:							
Fulstone	D	None	---	---	>6.0	---	---
Stucky	B	None	---	---	>6.0	---	---
321 Haybourne	B	Rare	---	---	>6.0	---	---
331*:							
Hocar	D	None	---	---	>6.0	---	---
Rock outcrop.							
341 Holbrook	B	Rare	---	---	>6.0	---	---
343*:							
Holbrook	B	Rare	---	---	>6.0	---	---
Hotsprings	B	None	---	---	>6.0	---	---
344*:							
Holbrook	B	Rare	---	---	>6.0	---	---
Shree	B	Rare	---	---	>6.0	---	---
345*:							
Holbrook Variant	C	None	---	---	>6.0	---	---
Rock outcrop.							
352, 353 Hotsprings	B	None	---	---	>6.0	---	---
354*:							
Hotsprings	B	None	---	---	>6.0	---	---
Holbrook	B	Rare	---	---	>6.0	---	---
361 Hough	B	None	---	---	>6.0	---	---
371*:							
Hyloc	D	None	---	---	>6.0	---	---
Ister	C	None	---	---	>6.0	---	---
372*:							
Hyloc	D	None	---	---	>6.0	---	---
Ister	C	None	---	---	>6.0	---	---
Rock outcrop.							
391, 392 Juva	B	Occasional	Very brief	Jun-Sep	>6.0	---	---
401 Lahontan	D	Rare	---	---	3.0-5.0	Apparent	May-Jul
411 Lapon	D	None	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
412*:							
Lapon	D	None	---	---	>6.0	---	---
Rubble land.							
Rock outcrop.							
413*:							
Lapon	D	None	---	---	>6.0	---	---
Fulstone	D	None	---	---	>6.0	---	---
Old Camp	D	None	---	---	>6.0	---	---
441 Lunder	D	None	---	---	>6.0	---	---
451 Obanion	C	None	---	---	0.5-2.0	Apparent	Jan-Dec
452 Obanion	C	None	---	---	2.0-3.5	Apparent	Jan-Dec
453 Obanion	C	None	---	---	0.5-2.0	Apparent	Jan-Dec
462*, 464*:							
Olac	D	None	---	---	>6.0	---	---
Rock outcrop.							
466*:							
Olac	D	None	---	---	>6.0	---	---
Ister	C	None	---	---	>6.0	---	---
Rock outcrop.							
471*:							
Oppio	D	None	---	---	>6.0	---	---
Nosrac	B	None	---	---	>6.0	---	---
481, 482 Orizaba	D	Rare	---	---	2.5-3.5	Apparent	Nov-May
483 Orizaba	C	Rare	---	---	>6.0	---	---
484 Orizaba	D	Rare	---	---	2.5-3.5	Apparent	Nov-May
486*:							
Orizaba	D	Rare	---	---	2.5-3.5	Apparent	Nov-May
Delp	A	None	---	---	>6.0	---	---
491 Otomo	D	None	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
501----------------------- Parran	D	None------------	---	---	2.5-3.5	Apparent	Nov-Mar
511, 512, 514, 516------ Patna	B	None------------	---	---	>6.0	---	---
517*:							
Patna------------------	B	None------------	---	---	>6.0	---	---
Hough------------------	B	None------------	---	---	>6.0	---	---
Playas.							
518---------------------- Patna	B	Occasional------	Brief----------	May-Aug	>6.0	---	---
519---------------------- Patna	B	None------------	---	---	>6.0	---	---
521---------------------- Pizene	B	None------------	---	---	>6.0	---	---
522*:							
Pizene-----------------	B	None------------	---	---	>6.0	---	---
Orizaba----------------	D	Rare------------	---	---	2.5-3.5	Apparent	Nov-May
523, 524---------------- Pizene	B	None------------	---	---	>6.0	---	---
531, 532, 534, 535------ Perazzo	B	None------------	---	---	>6.0	---	---
541*:							
Uripnes----------------	C	None------------	---	---	>6.0	---	---
541*:							
Chill------------------	D	None------------	---	---	>6.0	---	---
Rock outcrop.							
551---------------------- Rawe	C	None------------	---	---	>6.0	---	---
552*:							
Rawe------------------- (gravelly sandy loam)	C	None------------	---	---	>6.0	---	---
Rawe------------------- (loamy sand)	C	None------------	---	---	>6.0	---	---
553*:							
Rawe-------------------	C	None------------	---	---	>6.0	---	---
Malpais----------------	B	None------------	---	---	>6.0	---	---
561---------------------- Rebel	B	None------------	---	---	>6.0	---	---
571, 572---------------- Reno	D	None------------	---	---	>6.0	---	---
581, 582---------------- Risue	D	None------------	---	---	>6.0	---	---
591---------------------- Rose Creek	C	Frequent--------	Brief to long	Feb-Jun	1.5-3.0	Apparent	Dec-Jul
601---------------------- Rusty	C	None------------	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
603*:							
Rusty	C	None	---	---	>6.0	---	---
Isolde	A	None	---	---	>6.0	---	---
604*:							
Rusty	C	None	---	---	>6.0	---	---
Playas.							
611 Sagouspe	C	Rare	---	---	3.0-3.5	Apparent	Feb-Aug
612 Sagouspe	C	Rare	---	---	3.0-5.0	Apparent	Feb-Aug
613 Sagouspe	C	Occasional	Long	Apr-Jun	1.5-3.5	Apparent	Mar-Jun
621, 623, 625 Saralegui	B	None	---	---	>6.0	---	---
626 Saralegui	B	None	---	---	>6.0	---	---
627 Saralegui Variant	B	None	---	---	>6.0	---	---
631 Singatse	D	None	---	---	>6.0	---	---
632*:							
Singatse	D	None	---	---	>6.0	---	---
Rock outcrop.							
633*:							
Singatse	D	None	---	---	>6.0	---	---
Theon	D	None	---	---	>6.0	---	---
641, 642, 643 Tocan	C	None	---	---	>6.0	---	---
644*:							
Tocan	C	None	---	---	>6.0	---	---
Yerington	A	None	---	---	>6.0	---	---
651 Theon	D	None	---	---	>6.0	---	---
652*:							
Theon (3 to 50 percent slopes)	D	None	---	---	>6.0	---	---
Theon (50 to 75 percent slopes)	D	None	---	---	>6.0	---	---
Olac	D	None	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
653*:							
Theon	D	None	---	---	>6.0	---	---
Lapon	D	None	---	---	>6.0	---	---
Olac	D	None	---	---	>6.0	---	---
654*:							
Theon	D	None	---	---	>6.0	---	---
Rock outcrop.							
Old Camp	D	None	---	---	>6.0	---	---
655*:							
Theon	D	None	---	---	>6.0	---	---
Yerington	A	None	---	---	>6.0	---	---
661 Isolde	A	None	---	---	>6.0	---	---
662*:							
Isolde	A	None	---	---	>6.0	---	---
Patna	B	None	---	---	>6.0	---	---
663 Isolde	A	None	---	---	>6.0	---	---
671 Toulon	B	None	---	---	>6.0	---	---
681 Yerington Variant	C	None	---	---	>6.0	---	---
691 Ultra	D	None	---	---	>6.0	---	---
701 Veta	B	None	---	---	>6.0	---	---
702 Veta	B	Occasional	Very brief	Feb-Jul	>6.0	---	---
704 Veta	B	None	---	---	>6.0	---	---
711*:							
Vylach	D	None	---	---	>6.0	---	---
Weena	D	None	---	---	>6.0	---	---
721, 722, 723, 724 Wabuska	C	Rare	---	---	2.5-3.5	Apparent	May-Jul
725*:							
Wabuska	C	Rare	---	---	2.5-3.5	Apparent	May-Jul
Delp	A	None	---	---	>6.0	---	---
Playas.							

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
731, 732, 733, 734, 735-- Hunewill	C	None	---	---	>6.0	---	---
741*:							
Wedertz	C	None	---	---	>6.0	---	---
Wellington	D	None	---	---	>6.0	---	---
Saralegui	B	None	---	---	>6.0	---	---
742*, 743*:							
Wedertz	C	None	---	---	>6.0	---	---
Wellington	D	None	---	---	>6.0	---	---
744*:							
Wedertz	C	None	---	---	>6.0	---	---
Saralegui	B	None	---	---	>6.0	---	---
Wellington	D	None	---	---	>6.0	---	---
746*:							
Wellsed	C	None	---	---	>6.0	---	---
Wedlar	C	None	---	---	>6.0	---	---
751, 753 Malpais	B	None	---	---	>6.0	---	---
754*:							
Malpais (stony sandy loam)	B	None	---	---	>6.0	---	---
Malpais (gravelly sandy loam)	B	None	---	---	>6.0	---	---
755*:							
Malpais	B	None	---	---	>6.0	---	---
Yerington	A	None	---	---	>6.0	---	---
761, 762, 763, 764, 765, 766, 767 Yerington	A	None	---	---	>6.0	---	---
771*:							
Biddleman (gravelly sandy loam)	B	None	---	---	>6.0	---	---
Biddleman (very stony sandy loam)	B	None	---	---	>6.0	---	---
781 Celeton	D	None	---	---	>6.0	---	---
782*:							
Weena	D	None	---	---	>6.0	---	---
Malpais	B	None	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
782*:							
Weena	D	None	---	---	>6.0	---	---
Malpais	B	None	---	---	>6.0	---	---
791*:							
Flex	D	None	---	---	>6.0	---	---
Duco	D	None	---	---	>6.0	---	---
792*:							
Pirouette	D	None	---	---	>6.0	---	---
Osobb	D	None	---	---	>6.0	---	---
Rock outcrop.							
793 Pirouette	D	None	---	---	>6.0	---	---
802*:							
Loomer	D	None	---	---	>6.0	---	---
Zephan	C	None	---	---	>6.0	---	---
Olac	D	None	---	---	>6.0	---	---
803*:							
Loomer (15 to 30 percent slopes)	D	None	---	---	>6.0	---	---
Loomer (30 to 50 percent slopes)	D	None	---	---	>6.0	---	---
811*:							
Trid (30 to 50 percent slopes)	C	None	---	---	>6.0	---	---
Trid (4 to 15 percent slopes)	C	None	---	---	>6.0	---	---
Drit	B	None	---	---	>6.0	---	---
812*:							
Trid	B	None	---	---	>6.0	---	---
Roloc	D	None	---	---	>6.0	---	---
Drit	B	None	---	---	>6.0	---	---
821*. Badland							
822*. Dumps							
823*. Gypsum land							
824*, 825*. Pits							
826*. Playas							

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months
					Ft		
827*. Slickens							
831*:							
Ister	C	None	---	---	>6.0	---	---
Hyloc	D	None	---	---	>6.0	---	---
Lunder	D	None	---	---	>6.0	---	---
841*:							
Bradshaw	B	None	---	---	>6.0	---	---
Hartig	B	None	---	---	>6.0	---	---
851*:							
Tenpin	D	None	---	---	>6.0	---	---
Shree	B	Rare	---	---	>6.0	---	---
861 Shree	B	Rare	---	---	>6.0	---	---
871*:							
Nall	D	None	---	---	>6.0	---	---
Luppino	D	None	---	---	>6.0	---	---
Hotsprings	B	None	---	---	>6.0	---	---
881*:							
Ravenell Variant	D	None	---	---	>6.0	---	---
Devils Variant	C	None	---	---	>6.0	---	---
891*, 892*:							
Berit	D	None	---	---	>6.0	---	---
Shoken	D	None	---	---	>6.0	---	---
893*:							
Berit	D	None	---	---	>6.0	---	---
Saralegui	B	None	---	---	>6.0	---	---
911*:							
Fulstone Variant	D	None	---	---	>6.0	---	---
Devils	D	None	---	---	>6.0	---	---
Glean	B	None	---	---	>6.0	---	---
921*:							
Glean	B	None	---	---	>6.0	---	---
Devils	D	None	---	---	>6.0	---	---
922*:							
Glean	B	None	---	---	>6.0	---	---
Devils	D	None	---	---	>6.0	---	---
Rock outcrop.							
923*:							
Glean	B	None	---	---	>6.0	---	---
Ticino	C	None	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
923*:							
Hartig	B	None	---	---	>6.0	---	---
932*:							
Shoken	D	None	---	---	>6.0	---	---
Rock outcrop.							
951*:							
Koontz	D	None	---	---	>6.0	---	---
Ravenell	D	None	---	---	>6.0	---	---
Haar	D	None	---	---	>6.0	---	---
961 Luppino	D	None	---	---	>6.0	---	---
971*:							
Minneha	D	None	---	---	>6.0	---	---
Drit	B	None	---	---	>6.0	---	---
Rock outcrop.							
972*:							
Minneha	D	None	---	---	>6.0	---	---
Berit	D	None	---	---	>6.0	---	---
Wile	C	None	---	---	>6.0	---	---
981 Ravenell	D	None	---	---	>6.0	---	---
982*:							
Ravenell	D	None	---	---	>6.0	---	---
Haar	D	None	---	---	>6.0	---	---
Rock outcrop.							
991*:							
Roloc	D	None	---	---	>6.0	---	---
Drit	B	None	---	---	>6.0	---	---
1001 Rowel	D	None	---	---	>6.0	---	---
1002*:							
Rowel	D	None	---	---	>6.0	---	---
Rock outcrop.							
1011, 1012 Smedley	D	None	---	---	>6.0	---	---
1013*:							
Smedley (2 to 4 percent slopes)	D	None	---	---	>6.0	---	---
Smedley (4 to 15 percent slopes)	D	None	---	---	>6.0	---	---

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
1014*:							
Smedley (15 to 30 percent slopes)	D	None	---	---	>6.0	---	---
Smedley (4 to 15 percent slopes)	D	None	---	---	>6.0	---	---
1021 Springmeyer	C	None	---	---	>6.0	---	---
1031*:							
Burnborough	B	None	---	---	>6.0	---	---
Glean	B	None	---	---	>6.0	---	---
1041*:							
Whichman	B	None	---	---	>6.0	---	---
Iater	C	None	---	---	>6.0	---	---
Rock outcrop.							
1051 Zyzzi	D	None	---	---	>6.0	---	---
1072 Hawsley	A	None	---	---	>6.0	---	---
1073*:							
Hawsley	A	None	---	---	>6.0	---	---
Gamgee	C	None	---	---	>6.0	---	---
1074 Hawsley	A	None	---	---	>6.0	---	---
1075*:							
Hawsley	A	None	---	---	>6.0	---	---
Playas.							
1081 Stucky	B	None	---	---	>6.0	---	---
1082*:							
Stucky (8 to 15 percent slopes)	B	None	---	---	>6.0	---	---
Stucky (15 to 30 percent slopes)	B	None	---	---	>6.0	---	---
1083*:							
Stucky	B	None	---	---	>6.0	---	---
Hunewill	C	None	---	---	>6.0	---	---
Veta	B	None	---	---	>6.0	---	---
1091*:							
Glean Variant	C	None	---	---	>6.0	---	---
Hartig Variant	D	None	---	---	>6.0	---	---
Rubble land.							

See footnote at end of table.

TABLE 16.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
1103*:							
Mirkwood----------------	C	None------------	---	---	>6.0	---	---
Nemico------------------	D	None------------	---	---	>6.0	---	---
1110*:							
Surgem------------------	C	None------------	---	---	>6.0	---	---
Olac--------------------	D	None------------	---	---	>6.0	---	---
Cagle-------------------	C	None------------	---	---	>6.0	---	---
1121*:							
Duco--------------------	D	None------------	---	---	>6.0	---	---
Nosrad------------------	B	None------------	---	---	>6.0	---	---
1131--------------------- Gamgee	C	None------------	---	---	>6.0	---	---
1141*:							
Old Camp----------------	D	None------------	---	---	>6.0	---	---
Mirkwood----------------	C	None------------	---	---	>6.0	---	---
Nemico------------------	D	None------------	---	---	>6.0	---	---
1142*:							
Old Camp----------------	D	None------------	---	---	>6.0	---	---
Holbrook Variant--------	C	None------------	---	---	>6.0	---	---
1143*:							
Old Camp----------------	D	None------------	---	---	>6.0	---	---
Reno Variant------------	D	None------------	---	---	>6.0	---	---
Hyloc-------------------	D	None------------	---	---	>6.0	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL FEATURES

[The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
101, 102 Ackley	>60	---	---	---	Moderate	High	Moderate.
103*:							
Ackley	>60	---	---	---	Moderate	High	Moderate.
Ackley Variant	>60	---	---	---	Moderate	High	High.
121, 122 Appian	>60	---	---	---	Low	High	Low.
123*:							
Appian	>60	---	---	---	Low	High	Low.
Wabuska	>60	---	---	---	High	High	Low.
124*:							
Appian	>60	---	---	---	Low	High	Low.
Delp	>60	---	---	---	Low	High	Moderate.
141, 142 Bango	>60	---	---	---	Low	High	Low.
151 Bluewing Variant	>60	---	---	---	Low	High	Low.
161 Bluewing	>60	---	---	---	Low	High	Low.
162 Bluewing	>60	---	---	---	Low	High	Moderate.
171*:							
Cagle	20-40	Soft	---	---	Low	Moderate	Low.
Nosrac	>60	---	---	---	Moderate	High	Low.
181, 182, 184, 185 Charlebois	>60	---	---	---	Moderate	Moderate	Low.
191*:							
Chill (8 to 15 percent slopes)	6-14	Soft	---	---	Moderate	Moderate	Low.
Chill (15 to 30 percent slopes)	6-14	Soft	---	---	Moderate	Moderate	Low.
201, 202, 204, 206, 207 Cleaver	>60	---	10-20	Thick	Low	High	Low.
208*:							
Cleaver (2 to 4 percent slopes)	>60	---	10-20	Thick	Low	High	Low.
Cleaver (4 to 15 percent slopes)	>60	---	10-20	Thick	Low	High	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock: Depth	Bedrock: Hardness	Cemented pan: Depth	Cemented pan: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In		In				
209*:							
Cleaver (15 to 30 percent slopes)	>60	---	10-20	Thick	Low	High	Low.
Cleaver (4 to 15 percent slopes)	>60	---	10-20	Thick	Low	High	Low.
221, 223 Dalzell	>60	---	20-40	Thin	Moderate	High	Low.
231*:							
Delp	>60	---	---	---	Low	High	Moderate.
Lox	>60	---	---	---	Low	High	High.
232*:							
Delp	>60	---	---	---	Low	High	Moderate.
232*:							
Orizaba	>60	---	---	---	Moderate	High	High.
233 Delp	>60	---	---	---	Low	High	Moderate.
241*:							
Devada	12-20	Hard	---	---	Low	Moderate	Low.
Rock outcrop.							
242*:							
Devada	12-20	Hard	---	---	Low	Moderate	Low.
Rock outcrop.							
251, 252 Dia	>60	---	---	---	High	High	Low.
253 Dia	>60	---	---	---	High	High	High.
254*:							
Dia	>60	---	---	---	High	High	High.
Dithod (clay loam, wet)	>60	---	---	---	Moderate	High	High.
Dithod (loam, saline-alkali)	>60	---	---	---	Moderate	High	High.
255*:							
Dia	>60	---	---	---	High	High	Low.
Dithod	>60	---	---	---	High	High	Low.
256*:							
Dia	>60	---	---	---	High	High	Low.
Sagouspe (sandy loam)	>60	---	---	---	Moderate	High	Moderate.
Sagouspe (loamy sand)	>60	---	---	---	Moderate	High	Moderate.
261, 262 Dithod	>60	---	---	---	High	High	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
263, 264----------------- Dithod	>60	---	---	---	Moderate-------	High-----------	High.
265--------------------- Dithod	>60	---	---	---	High-----------	High-----------	Low.
268--------------------- Dithod	>60	---	---	---	Moderate-------	High-----------	High.
269*:							
Dithod------------------	>60	---	---	---	High-----------	High-----------	Low.
Sagouspe----------------	>60	---	---	---	Moderate-------	High-----------	Moderate.
Dia---------------------	>60	---	---	---	High-----------	High-----------	Low.
271--------------------- East Fork	>60	---	---	---	High-----------	High-----------	Low.
272--------------------- East Fork	>60	---	---	---	High-----------	High-----------	Low.
274, 275, 276, 277------- East Fork	>60	---	---	---	High-----------	High-----------	Low.
291, 292---------------- Fallon	>60	---	---	---	High-----------	High-----------	Low.
293--------------------- Fallon	>60	---	---	---	High-----------	High-----------	Low.
294--------------------- Fallon	>60	---	---	---	High-----------	High-----------	Low.
295--------------------- Fallon	>60	---	---	---	High-----------	High-----------	Low.
301, 302---------------- Fernley	>60	---	---	---	Moderate-------	High-----------	Low.
311, 312---------------- Fulstone	>60	---	14-20	Thick	Moderate-------	Moderate-------	Low.
313*:							
Fulstone---------------- (4 to 15 percent slopes	>60	---	14-20	Thick	Moderate-------	Moderate-------	Low.
Fulstone---------------- (15 to 30 percent slopes)	>60	---	14-20	Thick	Moderate-------	Moderate-------	Low.
314*:							
Fulstone---------------- (4 to 15 percent slopes)	>60	---	14-20	Thick	Moderate-------	Moderate-------	Low.
Reno--------------------	>60	---	20-40	Thick	Moderate-------	High-----------	Low.
Fulstone---------------- (15 to 30 percent slopes)	>60	---	14-20	Thick	Moderate-------	Moderate-------	Low.
315*:							
Fulstone----------------	>60	---	14-20	Thick	Moderate-------	Moderate-------	Low.
Stucky------------------	>60	---	---	---	Moderate-------	High-----------	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
321: Haybourne	>60	---	---	---	Moderate	Moderate	Low.
331*:							
Hocar	7-20	Soft	---	---	Moderate	High	Low.
Rock outcrop.							
341: Holbrook	>60	---	---	---	Moderate	High	Low.
343*:							
Holbrook	>60	---	---	---	Moderate	High	Low.
Hotsprings	>60	---	---	---	Moderate	Moderate	Low.
344*:							
Holbrook	>60	---	---	---	Moderate	High	Low.
Shree	>60	---	---	---	Moderate	Moderate	Low.
345*:							
Holbrook Variant	20-40	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.							
352, 353: Hotsprings	>60	---	---	---	Moderate	Moderate	Low.
354*:							
Hotsprings	>60	---	---	---	Moderate	Moderate	Low.
Holbrook	>60	---	---	---	Moderate	High	Low.
361: Hough	>60	---	---	---	Low	High	Low.
371*:							
Hyloc	14-20	Soft	---	---	Low	Moderate	Low.
Ister	25-40	Hard	---	---	Moderate	Moderate	Low.
372*:							
Hyloc	14-20	Soft	---	---	Low	Moderate	Low.
Ister	25-40	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.							
391, 392: Juva	>60	---	---	---	Low	High	Moderate.
401: Lahontan	>60	---	---	---	Moderate	High	High.
411: Lapon	15-40	Hard	8-14	Thick	Moderate	High	Low.
412*:							
Lapon	15-40	Hard	8-14	Thick	Moderate	High	Low.
Rubble land.							
Rock outcrop.							

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
413*:							
Lapon	15-40	Hard	8-14	Thick	Moderate	High	Low.
Fulstone	>60	---	14-20	Thick	Moderate	Moderate	Low.
Old Camp	10-20	Hard	---	---	Moderate	High	Low.
441 Lunder	>60	---	14-20	Thick	Low	Moderate	Low.
451, 452, 453 Obanion	>60	---	---	---	High	High	Moderate.
462*, 464*:							
Olac	8-14	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.							
466*:							
Olac	8-14	Hard	---	---	Moderate	Moderate	Low.
Ister	25-40	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.							
471*:							
Oppio	20-40	Hard	---	---	Moderate	High	Moderate.
Nosrac	>60	---	---	---	Moderate	High	Low.
481, 482 Orizaba	>60	---	---	---	High	High	High.
483 Orizaba	>60	---	---	---	Moderate	High	High.
484 Orizaba	>60	---	---	---	High	High	High.
486*:							
Orizaba	>60	---	---	---	High	High	High.
Delp	>60	---	---	---	Low	High	Moderate.
491 Otomo	>60	---	6-14	Thick	Low	High	Moderate.
501 Parran	>60	---	---	---	High	High	High.
511, 512, 514, 516 Patna	>60	---	---	---	Low	High	Low.
517*:							
Patna	>60	---	---	---	Low	High	Low.
Hough	>60	---	---	---	Low	High	Low.
Playas.							
518 Patna	>60	---	---	---	Low	High	Low.
519 Patna	>60	---	---	---	Low	High	Low.
521 Pizene	>60	---	---	---	Low	High	High.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock: Depth	Bedrock: Hardness	Cemented pan: Depth	Cemented pan: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In		In				
522*:							
Pizene	>60	---	---	---	Low	High	High.
Orizaba	>60	---	---	---	High	High	High.
523, 524 Pizene	>60	---	---	---	Low	High	High.
531, 532, 534, 535 Perazzo	>60	---	---	---	Low	High	Low.
541*:							
Uripnes	3-14	Soft	---	---	Low	High	Low.
Chill	6-14	Soft	---	---	Moderate	Moderate	Low.
Rock outcrop.							
551 Rawe	>60	---	---	---	Low	High	Low.
552*:							
Rawe (gravelly sandy loam)	>60	---	---	---	Low	High	Low.
Rawe (loamy sand)	>60	---	---	---	Low	High	Low.
553*:							
Rawe	>60	---	---	---	Low	High	Low.
Malpais	>60	---	---	---	Low	High	Low.
561 Rebel	>60	---	---	---	Moderate	High	Low.
571, 572 Reno	>60	---	20-40	Thick	Moderate	High	Low.
581, 582 Risue	>60	---	10-20	Thick	Low	High	Low.
591 Rose Creek	>60	---	---	---	High	High	Low.
601 Rusty	>60	---	---	---	Low	High	Moderate.
603*:							
Rusty	>60	---	---	---	Low	High	Moderate.
Isolde	>60	---	---	---	Low	Low	Low.
604*:							
Rusty	>60	---	---	---	Low	High	Moderate.
Playas.							
611 Sagouspe	>60	---	---	---	Moderate	High	Moderate.
612 Sagouspe	>60	---	---	---	Moderate	High	Low.
613 Sagouspe	>60	---	---	---	High	High	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
621, 623, 625 Saralegui	>60	---	---	---	Moderate	High	Low.
626 Saralegui	>60	---	---	---	Moderate	High	Low.
627 Saralegui Variant	>60	---	---	---	Moderate	High	Low.
631 Singatse	10-20	Hard	---	---	Low	High	Low.
632*:							
Singatse	10-20	Hard	---	---	Low	High	Low.
Rock outcrop.							
633*:							
Singatse	10-20	Hard	---	---	Low	High	Low.
Theon	10-20	Hard	---	---	Low	High	Low.
641, 642, 643 Tocan	>60	---	---	---	Low	High	Moderate.
644*:							
Tocan	>60	---	---	---	Low	High	Moderate.
Yerington	>60	---	---	---	Low	High	Moderate.
651 Theon	10-20	Hard	---	---	Low	High	Low.
652*:							
Theon (30 to 50 percent slopes)	10-20	Hard	---	---	Low	High	Low.
Theon (50 to 75 percent slopes)	10-20	Hard	---	---	Low	High	Low.
Olac	8-14	Hard	---	---	Moderate	Moderate	Low.
653*:							
Theon	10-20	Hard	---	---	Low	High	Low.
Lapon	15-40	Hard	8-14	Thick	Moderate	High	Low.
Olac	8-14	Hard	---	---	Moderate	Moderate	Low.
654*:							
Theon	10-20	Hard	---	---	Low	High	Low.
Rock outcrop.							
Old Camp	10-20	Hard	---	---	Moderate	High	Low.
655*:							
Theon	10-20	Hard	---	---	Low	High	Low.
Yerington	>60	---	---	---	Low	High	Moderate.
661 Isolde	>60	---	---	---	Low	Low	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
662*:							
Isolde	>60	---	---	---	Low	Low	Low.
Patna	>60	---	---	---	Low	High	Low.
663 Isolde	>60	---	---	---	Low	Low	Low.
671 Toulon	>60	---	---	---	Low	High	Low.
681 Yerington Variant	>60	---	---	---	Low	High	High.
691 Ultra	>60	---	---	---	Low	High	High.
701 Veta	>60	---	---	---	Moderate	High	Low.
702 Veta	>60	---	---	---	Moderate	High	Low.
704 Veta	>60	---	---	---	Moderate	High	Low.
711*:							
Vylach	20-30	Soft	9-17	Thin	Low	High	Low.
Weena	4-14	Soft	---	---	Low	High	Moderate.
721, 722, 723, 724 Wabuska	>60	---	---	---	High	High	Low.
725*:							
Wabuska	>60	---	---	---	High	High	Low.
Delp	>60	---	---	---	Low	High	Moderate.
Playas.							
731, 732, 733, 734, 735 Hunewill	>60	---	---	---	Moderate	Moderate	Low.
741*:							
Wedertz	>60	---	---	---	Moderate	Moderate	Moderate.
Wellington	>60	---	12-20	Thick	Moderate	Moderate	Low.
Saralegui	>60	---	---	---	Moderate	High	Low.
742*, 743*:							
Wedertz	>60	---	---	---	Moderate	Moderate	Moderate.
Wellington	>60	---	12-20	Thick	Moderate	Moderate	Low.
744*:							
Wedertz	>60	---	---	---	Moderate	Moderate	Moderate.
Saralegui	>60	---	---	---	Moderate	High	Low.
Wellington	>60	---	12-20	Thick	Moderate	Moderate	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
746*:							
Wellsed	>60	---	20-40	Thick	Moderate	High	Low.
Wedlar	>60	---	---	---	Moderate	High	Low.
751 Malpais	>60	---	---	---	Low	High	Low.
753 Malpais	>60	---	---	---	Low	High	Moderate.
754*:							
Malpais (gravelly sandy loam)	>60	---	---	---	Low	High	Low.
Malpais (stony sandy loam)	>60	---	---	---	Low	High	Moderate.
755*:							
Malpais	>60	---	---	---	Low	High	Low.
Yerington	>60	---	---	---	Low	High	Moderate.
761, 762, 763, 764, 765, 766, 767 Yerington	>60	---	---	---	Low	High	Moderate.
771*:							
Biddleman (gravelly sandy loam)	>60	---	---	---	Low	High	Low.
Biddleman (very stony sandy loam)	>60	---	---	---	Low	High	Low.
781 Celeton	4-14	Soft	---	---	Low	High	Low.
782*:							
Weena	4-14	Soft	---	---	Low	High	Moderate.
Malpais	>60	---	---	---	Low	High	Moderate.
791*:							
Flax	6-12	Soft	---	---	Moderate	Moderate	Low.
Duco	10-20	Hard	---	---	Moderate	Moderate	Low.
792*:							
Pirouette	12-23	Hard	11-20	Thin	Low	High	Low.
Osobb	9-30	Hard	8-20	Thin	Low	High	Low.
Rock outcrop.							
793 Pirouette	12-23	Hard	11-20	Thin	Low	High	Low.
802*:							
Loomer	14-20	Hard	---	---	Low	Moderate	Low.
Zephan	25-40	Soft	---	---	Moderate	High	Moderate.
Olac	8-14	Hard	---	---	Moderate	Moderate	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
803*:							
Loomer (15 to 30 percent slopes)	14-20	Hard	---	---	Low	Moderate	Low.
Loomer (30 to 50 percent slopes)	14-20	Hard	---	---	Low	Moderate	Low.
811*:							
Trid (30 to 50 percent slopes)	20-40	Soft	---	---	Moderate	Moderate	Low.
Trid (4 to 15 percent slopes)	20-40	Soft	---	---	Moderate	Moderate	Low.
Drit	>60	---	---	---	Moderate	Moderate	Low.
812*:							
Trid	20-40	Soft	---	---	Moderate	Moderate	Low.
Roloc	14-20	Soft	---	---	Moderate	Moderate	Low.
Drit	>60	---	---	---	Moderate	Moderate	Low.
821*. Badland							
822*. Dumps							
823*. Gypsum land							
824*, 825*. Pits							
826*. Playas							
827*. Slickens							
831*:							
Iater	25-40	Hard	---	---	Moderate	Moderate	Low.
Hyloc	14-20	Soft	---	---	Low	Moderate	Low.
Lunder	>60	---	14-20	Thick	Low	Moderate	Low.
841*:							
Bradshaw	40-60	Hard	---	---	Moderate	Moderate	Low.
Hartig	40-70	Hard	---	---	Moderate	Moderate	Low.
851*:							
Tenpin	>60	---	---	---	Low	Moderate	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
851*:							
Shree	>60	---	---	---	Moderate	Moderate	Low.
861 Shree	>60	---	---	---	Moderate	Moderate	Low.
871*:							
Nall	7-20	Soft	---	---	Moderate	Moderate	Low.
Luppino	12-20	Soft	---	---	Moderate	Moderate	Moderate.
Hotsprings	>60	---	---	---	Moderate	Moderate	Low.
881*:							
Ravenell Variant	12-20	Soft	---	---	Low	Moderate	Low.
Devils Variant	20-40	Soft	---	---	Moderate	Moderate	Low.
891*, 892*:							
Beritt	4-12	Soft	---	---	Moderate	Moderate	Low.
Shoken	3-10	Soft	---	---	Moderate	Moderate	Low.
893*:							
Beritt	4-12	Soft	---	---	Moderate	Moderate	Low.
Saralegui	>60	---	---	---	Moderate	High	Low.
911*:							
Fulstone Variant	>60	---	20-30	Thick	Low	Moderate	Low.
Devils	20-36	Soft	---	---	Moderate	Moderate	Low.
Glean	40-70	Hard	---	---	Moderate	Moderate	Low.
921*:							
Glean	40-70	Hard	---	---	Moderate	Moderate	Moderate.
Devils	20-36	Soft	---	---	Moderate	Moderate	Low.
922*:							
Glean	40-70	Hard	---	---	Moderate	Moderate	Moderate.
Devils	20-36	Soft	---	---	Moderate	Moderate	Low.
Rock outcrop.							
923*:							
Glean	40-70	Hard	---	---	Moderate	Moderate	Moderate.
Ticino	20-40	Soft	---	---	Moderate	Moderate	Low.
Hartig	40-70	Hard	---	---	Moderate	Moderate	Low.
932*:							
Shoken	3-10	Soft	---	---	Moderate	Moderate	Low.
Rock outcrop.							
951*:							
Koontz	8-20	Soft	---	---	Moderate	Moderate	Low.
Ravenell	6-14	Soft	---	---	Low	High	Low.
Haar	4-10	Soft	---	---	Moderate	Moderate	Low.
961 Luppino	12-20	Soft	---	---	Moderate	Moderate	Moderate.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
971*:							
Minneha	13-20	Soft	---	---	Moderate	Moderate	Low.
Drit	>60	---	---	---	Moderate	Moderate	Low.
Rock outcrop.							
972*:							
Minneha	13-20	Soft	---	---	Moderate	Moderate	Low.
Berit	4-12	Soft	---	---	Moderate	Moderate	Low.
Wile	12-20	Soft	---	---	Low	Moderate	Low.
981 Ravenell	6-14	Soft	---	---	Low	High	Low.
982*:							
Ravenell	6-14	Soft	---	---	Low	High	Low.
Haar	4-10	Soft	---	---	Moderate	Moderate	Low.
Rock outcrop.							
991*:							
Roloc	14-20	Soft	---	---	Moderate	Moderate	Low.
Drit	>60	---	---	---	Moderate	Moderate	Low.
1001 Rowel	10-14	Hard	---	---	Moderate	Moderate	Low.
1002*:							
Rowel	10-14	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.							
1011, 1012 Smedley	>60	---	14-20	Thick	Low	High	Low.
1013*:							
Smedley (2 to 4 percent slopes)	>60	---	14-20	Thick	Low	High	Low.
Smedley (4 to 15 percent slopes)	>60	---	14-20	Thick	Low	High	Low.
1014*:							
Smedley (15 to 30 percent slopes)	>60	---	14-20	Thick	Low	High	Low.
Smedley (4 to 15 percent slopes)	>60	---	14-20	Thick	Low	High	Low.
1021 Springmeyer	>60	---	---	---	Moderate	Moderate	Low.
1031*:							
Burnborough	>60	---	---	---	Moderate	Low	Low.
Glean	40-70	Hard	---	---	Moderate	Moderate	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
1041*:							
Whichman	40-60	Hard	---	---	Moderate	Low	Low.
Iater	25-40	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.							
1051 Zyzzi	4-10	Soft	---	---	Low	Moderate	Low.
1072 Hawsley	>60	---	---	---	Low	High	Low.
1073*:							
Hawsley	>60	---	---	---	Low	High	Low.
Gamgee	>60	---	---	---	Low	High	Low.
1074 Hawsley	>60	---	---	---	Low	High	Low.
1075*:							
Hawsley	>60	---	---	---	Low	High	Low.
Playas.							
1081 Stucky	>60	---	---	---	Moderate	High	Low.
1082*:							
Stucky (8 to 15 percent slopes)	>60	---	---	---	Moderate	High	Low.
Stucky (15 to 30 percent slopes)	>60	---	---	---	Moderate	High	Low.
1083*:							
Stucky	>60	---	---	---	Moderate	High	Low.
Hunewill	>60	---	---	---	Moderate	Moderate	Low.
Veta	>60	---	---	---	Moderate	High	Low.
1091*:							
Glean Variant	20-40	Soft	---	---	Low	Moderate	Low.
Hartig Variant	10-20	Hard	---	---	Moderate	Moderate	Low.
Rubble land.							
1103*:							
Mirkwood	7-14	Hard	---	---	Low	Moderate	Low.
Nemico	11-25	Hard	10-20	Thin	Low	High	Low.
1110*:							
Surgem	20-30	Hard	---	---	Low	High	Low.
Olac	8-14	Hard	---	---	Moderate	Moderate	Low.
Caglo	20-40	Soft	---	---	Low	Moderate	Low.

See footnote at end of table.

TABLE 17.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
	In		In				
1121*:							
Duco	10-20	Hard	---	---	Moderate	Moderate	Low.
Nosrac	>60	---	---	---	Moderate	High	Low.
1131 Gamgee	>60	---	---	---	Low	High	Moderate.
1141*:							
Old Camp	10-20	Hard	---	---	Moderate	High	Low.
Mirkwood	7-14	Hard	---	---	Low	Moderate	Low.
Nemico	11-25	Hard	10-20	Thin	Low	High	Low.
1142*:							
Old Camp	10-20	Hard	---	---	Moderate	High	Low.
Holbrook Variant	20-40	Hard	---	---	Moderate	Moderate	Low.
1143*:							
Old Camp	10-20	Hard	---	---	Moderate	High	Low.
Reno Variant	20-36	Hard	15-20	Thin	Moderate	Moderate	Low.
Hyloc	14-20	Soft	---	---	Low	Moderate	Low.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Ackley	Fine-loamy, mixed, mesic Xerollic Haplargids
Ackley Variant	Fine-loamy, mixed, mesic Xerollic Haplargids
Appian	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Natrargids
Bango	Fine-loamy, mixed, mesic Haplic Natrargids
Berit	Loamy-skeletal, mixed, mesic, shallow Xerollic Haplargids
Biddleman	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Natrargids
Bluewing	Sandy-skeletal, mixed, mesic Typic Torriorthents
Bluewing Variant	Fine, montmorillonitic, nonacid, mesic Typic Torriorthents
Bradshaw	Loamy-skeletal, mixed, frigid Typic Haploxerolls
Burnborough	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Cagle	Fine, montmorillonitic, mesic Aridic Argixerolls
Celeton	Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents
Charlebois	Fine-loamy, mixed, mesic Durargidic Argixerolls
Chill	Loamy, mixed, mesic, shallow Xerollic Haplargids
Cleaver	Loamy, mixed, mesic, shallow Typic Durargids
Dalzell	Fine-loamy, mixed, mesic Haploxerollic Nadurargids
Delp	Coarse-loamy, mixed, mesic Typic Haplargids
Devada	Clayey, montmorillonitic, mesic Lithic Argixerolls
Devils	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Devils Variant	Fine-loamy, mixed, frigid Aridic Argixerolls
Dia	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Fluvaquentic Haploxerolls
Dithod	Fine-loamy, mixed, mesic Fluvaquentic Haploxerolls
Drit	Loamy-skeletal, mixed, mesic Pachic Haploxerolls
Duco	Loamy-skeletal, mixed, mesic Lithic Argixerolls
East Fork	Fine-loamy, mixed, mesic Fluvaquentic Haploxerolls
Fallon	Coarse-loamy, mixed, nonacid, mesic Aquic Xerofluvents
Fernley	Mixed, mesic Aquic Xeropsamments
Flex	Loamy-skeletal, mixed, mesic, shallow Xerollic Haplargids
Fulstone	Clayey, montmorillonitic, mesic, shallow Abruptic Xerollic Durargids
Fulstone Variant	Fine, montmorillonitic, frigid Abruptic Aridic Durixerolls
Gamgee	Fine-loamy, mixed, mesic Haplic Natrargids
Glean	Loamy-skeletal, mixed, frigid Pachic Haploxerolls
Glean Variant	Sandy, mixed Typic Cryoborolls
Haar	Loamy, mixed, nonacid, mesic, shallow Xeric Torriorthents
Hartig	Loamy-skeletal, mixed, frigid Aridic Haploxerolls
Hartig Variant	Loamy-skeletal, mixed Lithic Cryoborolls
Hawsley	Mixed, mesic Typic Torripsamments
Haybourne	Coarse-loamy, mixed, mesic Xerollic Camborthids
Hocar	Loamy-skeletal, mixed, mesic, shallow Calciorthidic Haploxerolls
Holbrook	Loamy-skeletal, mixed, mesic Aridic Haploxerolls
Holbrook Variant	Loamy-skeletal, mixed, mesic Xerollic Camborthids
Hotsprings	Mixed, mesic Xeric Torripsamments
Hough	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Haplargids
Hunewill	Loamy-skeletal, mixed, mesic Xerollic Haplargids
Hyloc	Clayey, montmorillonitic, mesic, shallow Aridic Argixerolls
Isolde	Mixed, mesic Typic Torripsamments
Ister	Loamy-skeletal, mixed, mesic Aridic Argixerolls
Juva	Coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents
Koontz	Loamy-skeletal, mixed, mesic, shallow Aridic Argixerolls
Lahontan	Fine, montmorillonitic (calcareous), mesic Aquic Xerofluvents
Lapon	Loamy-skeletal, mixed, mesic, shallow Xerollic Durargids
Loomer	Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls
Lox	Loamy-skeletal, mixed, mesic Typic Natrargids
Lunder	Clayey, montmorillonitic, mesic, shallow Abruptic Aridic Durixerolls
Luppino	Loamy, mixed, mesic, shallow Aridic Argixerolls
Malpais	Loamy-skeletal, mixed, mesic Typic Camborthids
Minneha	Loamy-skeletal, mixed, mesic, shallow Aridic Haploxerolls
Mirkwood	Loamy-skeletal, mixed, mesic Lithic Haplargids
Nall	Loamy, mixed, mesic, shallow Aridic Haploxerolls
Nemico	Clayey, montmorillonitic, mesic, shallow Typic Nadurargids
Nosrac	Loamy-skeletal, mixed, mesic Aridic Argixerolls
Obanion	Fine-loamy, mixed, nonacid, mesic Aeric Halaquepts
Olac	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Old Camp	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Orpio	Fine, montmorillonitic, mesic Xerollic Haplargids
Orizaba	Fine-loamy, mixed (calcareous), mesic Aeric Halaquepts
Osobb	Loamy-skeletal, mixed, mesic, shallow Typic Durorthids
Otomo	Loamy-skeletal, mixed, mesic, shallow Typic Durorthids
Parran	Fine, montmorillonitic, mesic Typic Salorthids
Patna	Coarse-loamy, mixed, mesic Typic Haplargids
Perazzo	Loamy-skeletal, mixed, mesic Typic Haplargids
Pirouette	Loamy-skeletal, mixed, mesic, shallow Typic Nadurargids

TABLE 18.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Pizene	Fine-loamy, mixed, mesic Typic Natrargids
Ravenell	Loamy-skeletal, mixed, mesic, shallow Xerollic Haplargids
Ravenell Variant	Clayey, montmorillonitic, frigid, shallow Xerollic Haplargids
Rawe	Clayey over loamy-skeletal, montmorillonitic, mesic Typic Haplargids
Rebel	Coarse-loamy, mixed, mesic Xerollic Camborthids
Reno	Fine, montmorillonitic, mesic Abruptic Xerollic Durargids
Reno Variant	Loamy,mixed, mesic, shallow Haploxerollic Durargids
Risue	Clayey, montmorillonitic, mesic, shallow Abruptic Durargids
Roloc	Loamy-skeletal, mixed, mesic, shallow Aridic Argixerolls
Rose Creek	Coarse-loamy, mixed, mesic Fluvaquentic Haploxerolls
Rowel	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Rusty	Fine-loamy, mixed, mesic Typic Natrargids
Sagouspe	Sandy, mixed, mesic Aquic Xerofluvents
Saralegui	Coarse-loamy, mixed, mesic Xerollic Haplargids
Saralegui Variant	Coarse-loamy, mixed, mesic Xerollic Haplargids
Shoken	Loamy-skeletal, mixed, nonacid, mesic, shallow Xeric Torriorthents
Shree	Loamy-skeletal, mixed, mesic Aridic Argixerolls
Singatse	Loamy-skeletal, mixed (calcareous), mesic Lithic Torriorthents
Smedley	Clayey, montmorillonitic, mesic, shallow Haplic Durargids
Springmeyer	Fine-loamy, mixed, mesic Aridic Argixerolls
Stucky	Loamy-skeletal, mixed, mesic Xerollic Haplargids
Surgem	Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids
Tenpin	Clayey-skeletal, montmorillonitic, mesic Xerollic Paleargids
Theon	Loamy-skeletal, mixed, mesic Lithic Haplargids
Ticino	Fine-loamy, mixed, frigid Typic Argixerolls
Tocan	Fine-loamy, mixed, mesic Duric Haplargids
Toulon	Sandy-skeletal, mixed, mesic Typic Camborthids
Trid	Loamy-skeletal, mixed, mesic Aridic Argixerolls
Ultra	Fine, montmorillonitic, mesic Typic Natrargids
Uripnes	Loamy-skeletal, mixed, nonacid, mesic, shallow Typic Torriorthents
Veta	Loamy-skeletal, mixed, mesic Xerollic Camborthids
Vylach	Loamy, mixed, mesic, shallow Haplic Durargids
Wabuska	Coarse-loamy, mixed (calcareous), mesic Aeric Halaquepts
Wedertz	Fine-loamy, mixed, mesic Durixerollic Haplargids
Wedlar	Fine-loamy, mixed, mesic Durixerollic Haplargids
Weena	Loamy, mixed, nonacid, mesic, shallow Typic Torriorthents
Wellington	Loamy, mixed, mesic, shallow Xerollic Durargids
Wellsed	Fine-loamy, mixed, mesic Xerollic Durargids
Whichman	Loamy-skeletal, mixed, mesic Aridic Haploxerolls
Wile	Clayey, montmorillonitic, mesic, shallow Aridic Argixerolls
Yerington	Sandy, mixed, mesic Typic Torriorthents
Yerington Variant	Fine-loamy, mixed, nonacid, mesic Typic Torriorthents
Zephan	Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids
Zyzzi	Loamy-skeletal, mixed, mesic, shallow Xerollic Haplargids

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U. S. DEPARTMENT OF AGRICULTURE
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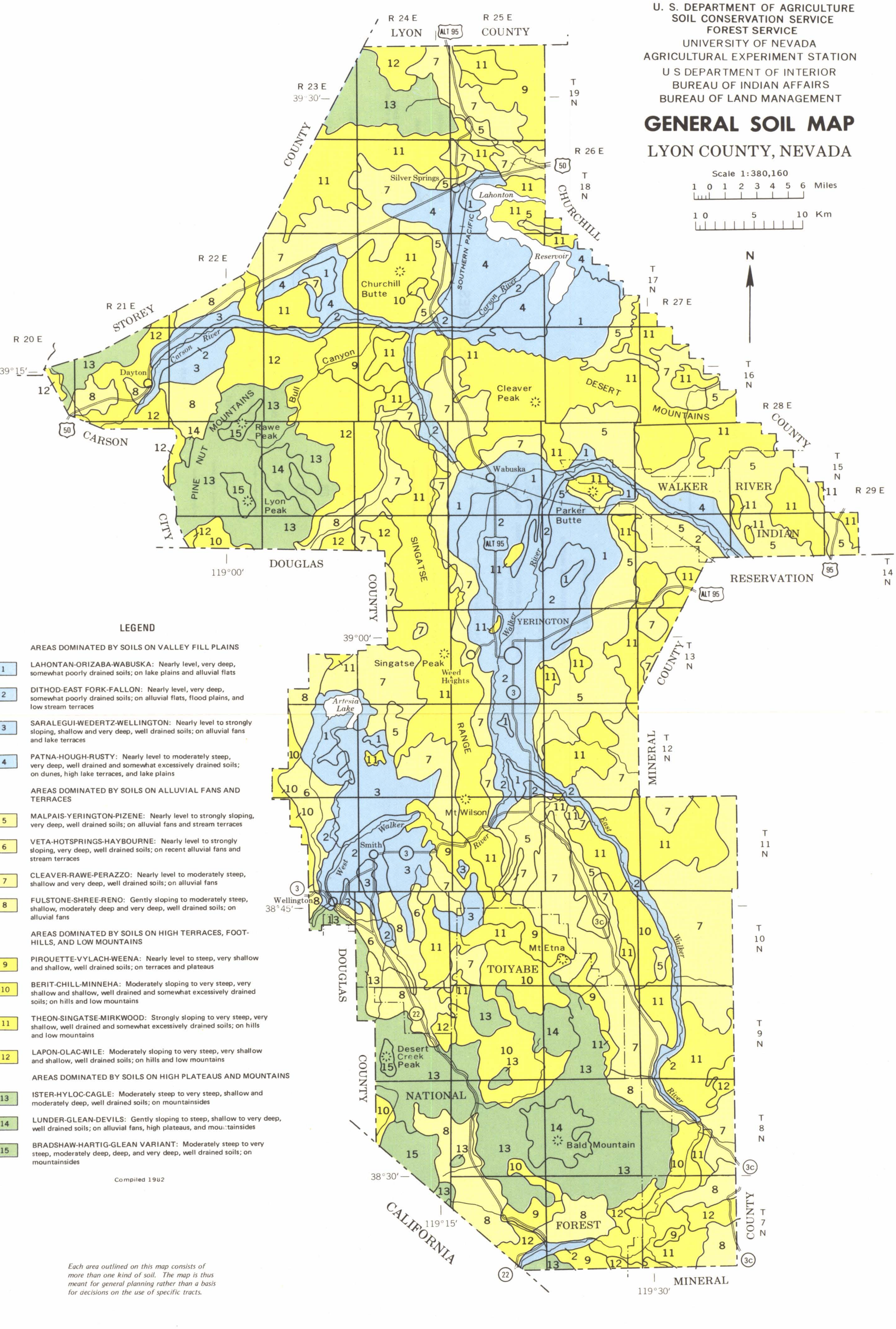
UNIVERSITY OF NEVADA
AGRICULTURAL EXPERIMENT STATION
U S DEPARTMENT OF INTERIOR
BUREAU OF INDIAN AFFAIRS
BUREAU OF LAND MANAGEMENT

GENERAL SOIL MAP

LYON COUNTY, NEVADA

Scale 1:380,160



LEGEND

AREAS DOMINATED BY SOILS ON VALLEY FILL PLAINS

1 LAHONTAN-ORIZABA-WABUSKA: Nearly level, very deep, somewhat poorly drained soils; on lake plains and alluvial flats

2 DITHOD-EAST FORK-FALLON: Nearly level, very deep, somewhat poorly drained soils; on alluvial flats, flood plains, and low stream terraces

3 SARALEGUI-WEDERTZ-WELLINGTON: Nearly level to strongly sloping, shallow and very deep, well drained soils; on alluvial fans and lake terraces

4 PATNA-HOUGH-RUSTY: Nearly level to moderately steep, very deep, well drained and somewhat excessively drained soils; on dunes, high lake terraces, and lake plains

AREAS DOMINATED BY SOILS ON ALLUVIAL FANS AND TERRACES

5 MALPAIS-YERINGTON-PIZENE: Nearly level to strongly sloping, very deep, well drained soils; on alluvial fans and stream terraces

6 VETA-HOTSPRINGS-HAYBOURNE: Nearly level to strongly sloping, very deep, well drained soils; on recent alluvial fans and stream terraces

7 CLEAVER-RAWE-PERAZZO: Nearly level to moderately steep, shallow and very deep, well drained soils; on alluvial fans

8 FULSTONE-SHREE-RENO: Gently sloping to moderately steep, shallow, moderately deep and very deep, well drained soils; on alluvial fans

AREAS DOMINATED BY SOILS ON HIGH TERRACES, FOOT-HILLS, AND LOW MOUNTAINS

9 PIROUETTE-VYLACH-WEENA: Nearly level to steep, very shallow and shallow, well drained soils; on terraces and plateaus

10 BERIT-CHILL-MINNEHA: Moderately sloping to very steep, very shallow and shallow, well drained and somewhat excessively drained soils; on hills and low mountains

11 THEON-SINGATSE-MIRKWOOD: Strongly sloping to very steep, very shallow, well drained and somewhat excessively drained soils; on hills and low mountains

12 LAPON-OLAC-WILE: Moderately sloping to very steep, very shallow and shallow, well drained soils; on hills and low mountains

AREAS DOMINATED BY SOILS ON HIGH PLATEAUS AND MOUNTAINS

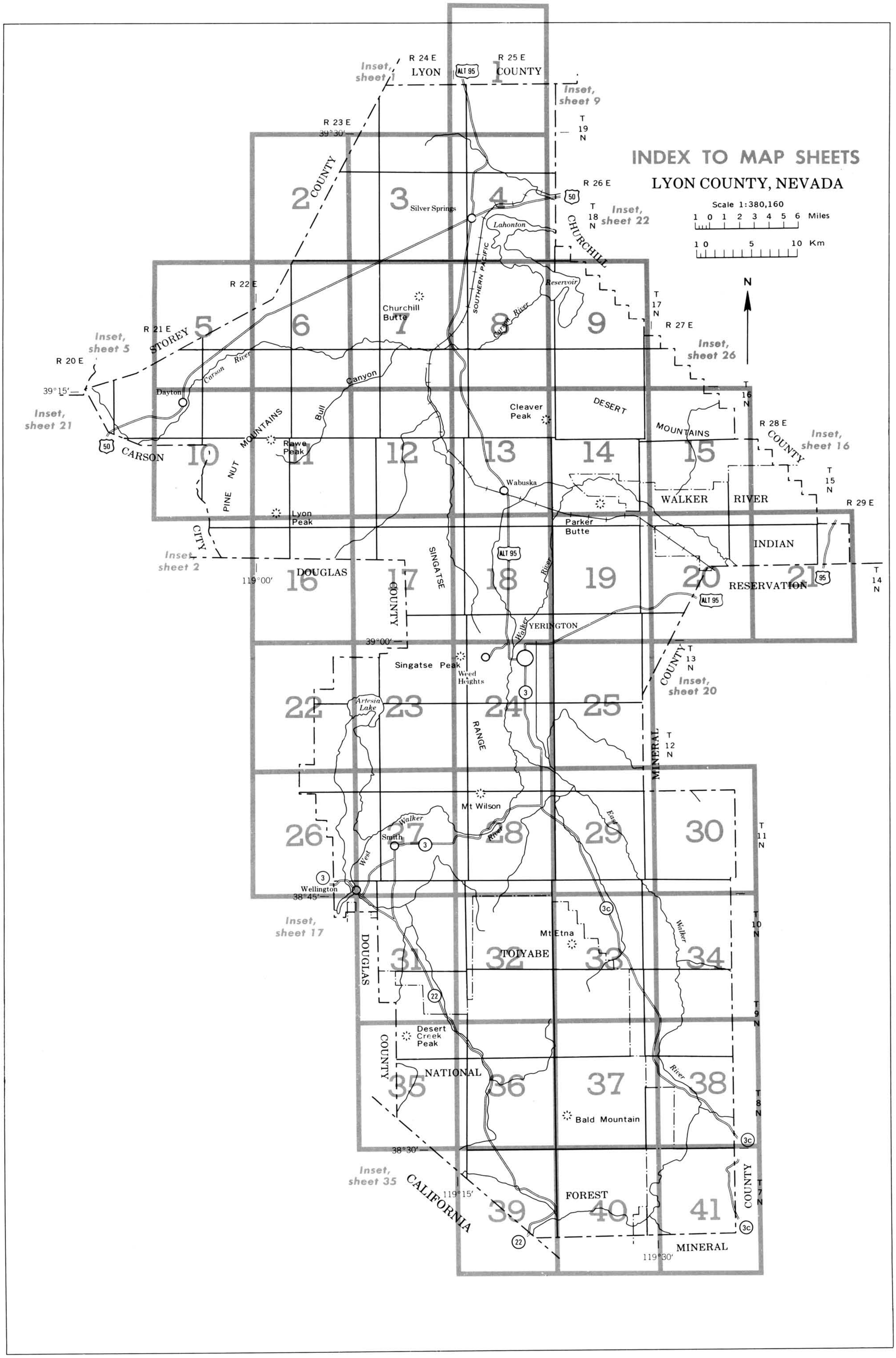
13 ISTER-HYLOC-CAGLE: Moderately steep to very steep, shallow and moderately deep, well drained soils; on mountainsides

14 LUNDER-GLEAN-DEVILS: Gently sloping to steep, shallow to very deep, well drained soils; on alluvial fans, high plateaus, and mountainsides

15 BRADSHAW-HARTIG-GLEAN VARIANT: Moderately steep to very steep, moderately deep, deep, and very deep, well drained soils; on mountainsides

Compiled 1982

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.


INDEX TO MAP SHEETS
LYON COUNTY, NEVADA
Scale 1:380,160
Miles
Km
N
LYON COUNTY
STOREY COUNTY
CARSON CITY
DOUGLAS COUNTY
CHURCHILL COUNTY
MINERAL COUNTY
CALIFORNIA
Inset, sheet 9
Inset, sheet 22
Inset, sheet 26
Inset, sheet 16
Inset, sheet 20
Inset, sheet 5
Inset, sheet 21
Inset, sheet 2
Inset, sheet 17
Inset, sheet 35
Silver Springs
Lahonton Reservoir
Churchill Butte
Carson River
SOUTHERN PACIFIC
Dayton
Bull Canyon
PINE NUT MOUNTAINS
Rawe Peak
Lyon Peak
Cleaver Peak
DESERT MOUNTAINS
Wabuska
WALKER RIVER INDIAN RESERVATION
Parker Butte
SINGATSE RANGE
YERINGTON
Walker River
Singatse Peak
Weed Heights
Artesia Lake
Mt Wilson
Smith
West Walker River
East Walker River
Wellington
Mt Etna
TOIYABE NATIONAL FOREST
Desert Creek Peak
Bald Mountain
R 20 E
R 21 E
R 22 E
R 23 E
R 24 E
R 25 E
R 26 E
R 27 E
R 28 E
R 29 E
T 19 N
T 18 N
T 17 N
T 16 N
T 15 N
T 14 N
T 13 N
T 12 N
T 11 N
T 10 N
T 9 N
T 8 N
T 7 N
39°30′
39°15′
39°00′
38°45′
38°30′
119°00′
119°15′
119°30′
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label) — Hedley Airstrip

- Small airport, airfield, park, oilfield, cemetery, or flood pool — FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate — 21
- Federal — 173
- State — 28
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water, w

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower
- Tank (label) — Gas
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water, w
- Intermittent — int, i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — CnB, WaC2

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown) — S

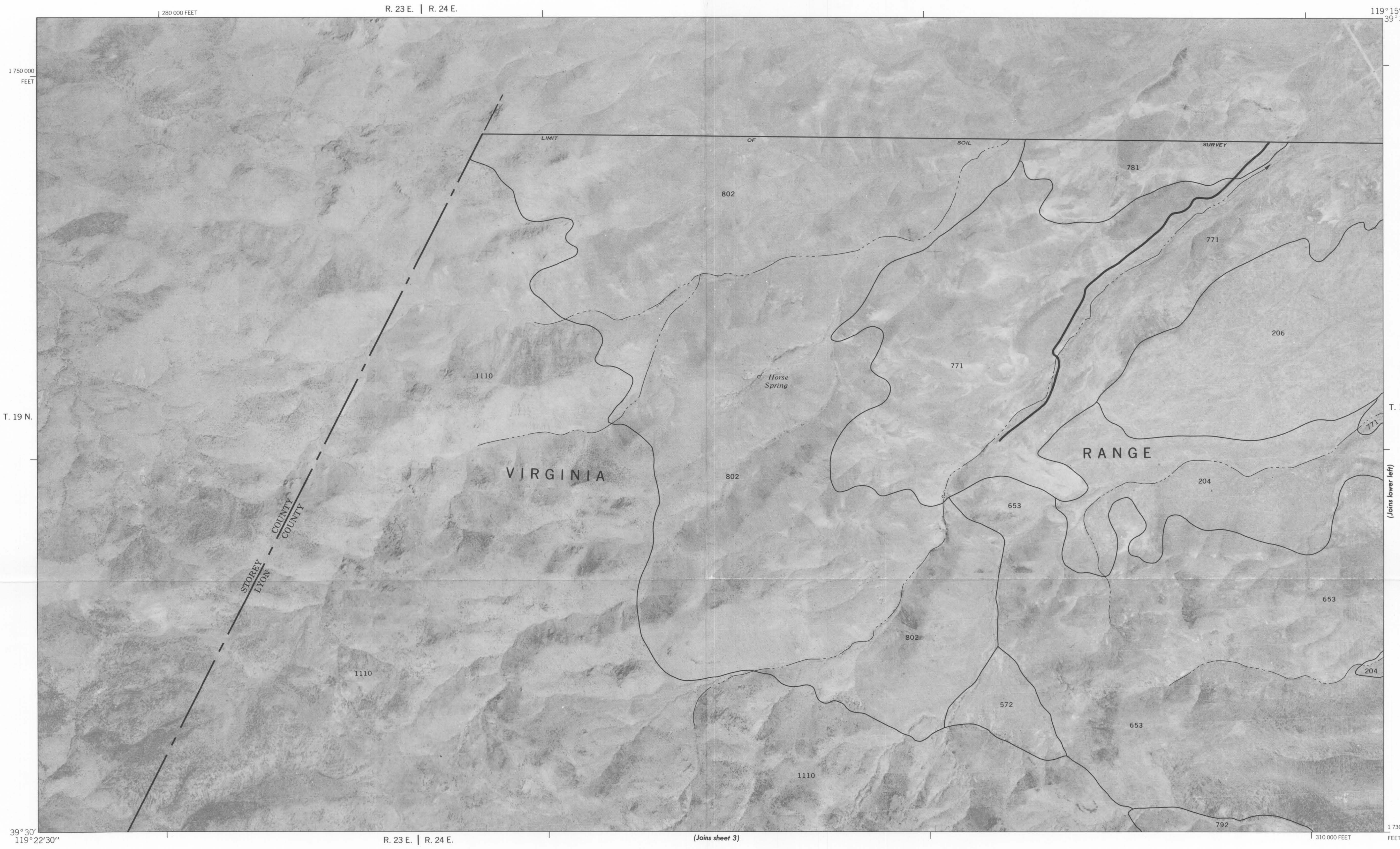
MISCELLANEOUS

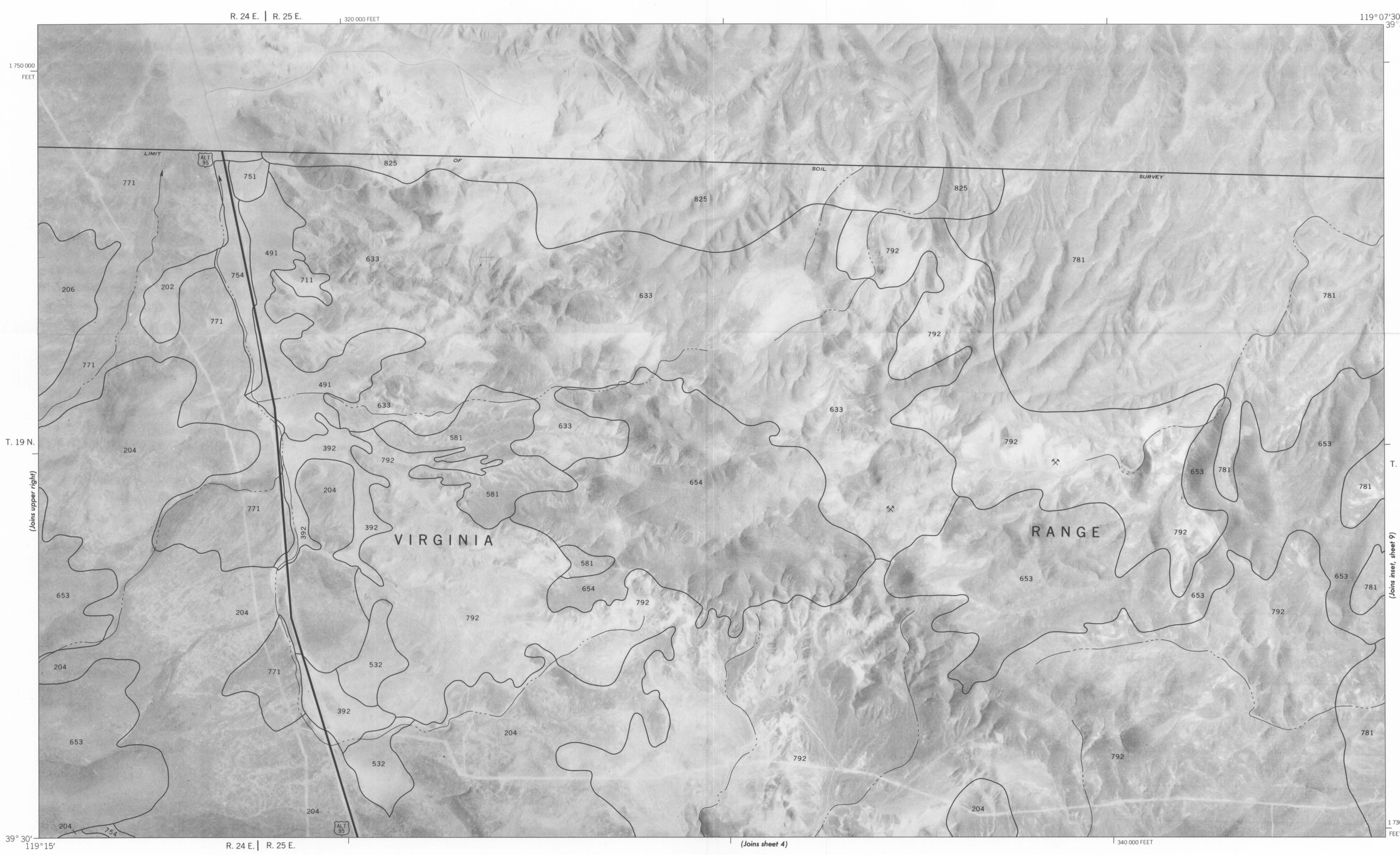
- Blowout
- Clay spot
- Gravelly spot (1 Acre Each)
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (2 Acres Each) (includes sandstone and shale)
- Saline spot
- Sandy spot (1 Acre Each)
- Severely eroded spot (1 Acre Each)
- Slide or slip (tips point upslope)
- Stony spot, very stony spot (1 Acre Each)

SOIL LEGEND

*Map units are narrowly defined. Map units without the asterisk are broadly defined.

SYMBOL	NAME
101	Ackley sandy loam, 0 to 2 percent slopes*
102	Ackley gravelly sandy loam, 2 to 4 percent slopes*
103	Ackley-Ackley Variant complex*
121	Appian loamy sand*
122	Appian loam*
123	Appian-Wabuska complex*
124	Appian-Delp complex, 0 to 15 percent slopes*
141	Bango sandy loam*
142	Bango very gravelly loamy sand*
151	Bluewing Variant clay, 2 to 8 percent slopes*
161	Bluewing very gravelly sand, 2 to 8 percent slopes*
162	Bluewing very stony loamy sand, 2 to 8 percent slopes*
171	Cagle-Nosrac association
181	Charlebois loam, 0 to 2 percent slopes*
182	Charlebois loam, 2 to 4 percent slopes*
184	Charlebois gravelly loam, 0 to 2 percent slopes*
185	Charlebois sandy loam, 0 to 2 percent slopes*
191	Chill association
201	Cleaver loamy fine sand, 2 to 8 percent slopes*
202	Cleaver gravelly sandy loam, 2 to 4 percent slopes*
204	Cleaver stony sandy loam, 4 to 15 percent slopes*
206	Cleaver very stony loam, 2 to 4 percent slopes*
207	Cleaver very stony loam, 15 to 30 percent slopes*
208	Cleaver association, sloping
209	Cleaver association, moderately steep
221	Dalzell sand, 2 to 4 percent slopes*
223	Dalzell clay loam, 0 to 2 percent slopes*
231	Delp-Lox association
232	Delp-Orizaba complex, 0 to 15 percent slopes
233	Delp sand, 2 to 15 percent slopes*
241	Devada-Rock outcrop complex, 4 to 15 percent slopes
242	Devada-Rock outcrop association
251	Dia loam*
252	Dia clay loam*
253	Dia clay loam, wet*
254	Dia-Dithod complex*
255	Dia-Dithod complex, ponded*
256	Dia-Sagouspe complex*
261	Dithod loam*
262	Dithod loam, clay substratum*
263	Dithod clay loam, wet*
264	Dithod loam, saline-alkali*
265	Dithod clay loam*
268	Dithod clay loam, wet, saline-alkali*
269	Dithod-Sagouspe-Dia complex*
271	East Fork loam*
272	East Fork loam, occasionally flooded*
274	East Fork clay loam*
275	East Fork clay loam, saline-alkali*
276	East Fork clay loam, clay substratum*
277	East Fork gravelly clay loam*
291	Fallon sand*
292	Fallon fine sandy loam*
293	Fallon fine sandy loam, frequently flooded*
294	Fallon fine sandy loam, saline-alkali*
295	Fallon sandy loam, ponded*
301	Fernley loamy sand*
302	Fernley loamy sand, drained*
311	Fulstone cobbly loam, 2 to 8 percent slopes*
312	Fulstone cobbly loam, 8 to 15 percent slopes*
313	Fulstone association
314	Fulstone-Reno association
315	Fulstone-Stucky association
321	Haybourne loam*
331	Hocar-Rock outcrop complex, 15 to 30 percent slopes, eroded*
341	Holbrook very stony sandy loam, 4 to 15 percent slopes*
343	Holbrook-Hotsprings complex, 2 to 15 percent slopes*
344	Holbrook-Shree association
345	Holbrook Variant-Rock outcrop complex, 30 to 75 percent slopes
352	Hotsprings loamy coarse sand, 2 to 8 percent slopes*
353	Hotsprings gravelly loamy coarse sand, 0 to 2 percent slopes*
354	Hotsprings-Holbrook complex, 2 to 4 percent slopes*
361	Hough sand, 0 to 2 percent slopes*
371	Hyloc-Ister association
372	Hyloc-Ister-Rock outcrop association
391	Juva gravelly silt loam, 0 to 2 percent slopes*
392	Juva gravelly fine sandy loam, 2 to 4 percent slopes*
401	Lahontan silty clay loam, strongly saline-alkali*
411	Lapon extremely stony loam, 15 to 30 percent slopes*
412	Lapon-Rubble land-Rock outcrop association
413	Lapon-Fulstone-Old Camp association
441	Lunder very cobbly loam, 2 to 15 percent slopes
451	Obanion loamy coarse sand*
452	Obanion sandy loam, drained*
453	Obanion sandy loam, saline-alkali*
462	Olac-Rock outcrop complex, 8 to 15 percent slopes*
464	Olac-Rock outcrop complex, 15 to 50 percent slopes
466	Olac-Ister-Rock outcrop association
471	Oppio-Nosrac association
481	Orizaba sandy loam*
482	Orizaba loam, strongly saline-alkali*
483	Orizaba loam, drained*
484	Orizaba silty clay loam*
486	Orizaba-Delp association
491	Otomo gravelly sandy loam, 4 to 15 percent slopes
501	Parran silty clay loam*
511	Patna fine sand, 4 to 15 percent slopes
512	Patna fine sand, 15 to 30 percent slopes*
514	Patna loamy sand, silty substratum, 0 to 2 percent slopes*
516	Patna sand, 0 to 4 percent slopes
517	Patna-Hough-Playas association
518	Patna sandy loam, occasionally flooded, 0 to 2 percent slopes*
519	Patna loam, 0 to 2 percent slopes*
521	Pizene sandy loam, 0 to 4 percent slopes*
522	Pizene-Orizaba complex*
523	Pizene loam, 0 to 2 percent slopes*
524	Pizene loamy fine sand, 0 to 2 percent slopes*
531	Perazzo gravelly loam, 0 to 2 percent slopes*
532	Perazzo gravelly loam, 2 to 8 percent slopes
534	Perazzo very gravelly sandy loam, 8 to 15 percent slopes*
535	Perazzo very stony sandy loam, 4 to 8 percent slopes*
541	Uripnes-Chill-Rock outcrop association
551	Rawe gravelly sandy loam, 4 to 15 percent slopes
552	Rawe complex, 2 to 4 percent slopes*
553	Rawe-Malpais association
561	Rebel sandy loam, 0 to 2 percent slopes*
571	Reno gravelly sandy loam, 2 to 4 percent slopes*
572	Reno cobbly sandy loam, 4 to 15 percent slopes*
581	Risue extremely stony loam, 8 to 15 percent slopes*
582	Risue gravelly loam, 0 to 8 percent slopes
591	Rose Creek loam*
601	Rusty sand, 0 to 2 percent slopes*
603	Rusty-Isolde complex, 0 to 15 percent slopes*
604	Rusty-Playas complex, 0 to 2 percent slopes*
611	Sagouspe sandy loam*
612	Sagouspe sandy loam, saline-alkali*
613	Sagouspe loam, wet*
621	Saralegui loamy sand, 0 to 4 percent slopes*
623	Saralegui loamy sand, 4 to 8 percent slopes*
625	Saralegui sandy loam, 0 to 2 percent slopes*
626	Saralegui loamy sand, undulating*
627	Saralegui Variant loamy sand*
631	Singatse very gravelly sandy loam, 8 to 15 percent slopes*
632	Singatse-Rock outcrop complex, 30 to 75 percent slopes
633	Singatse-Theon association
641	Tocan sandy loam, 0 to 2 percent slopes*
642	Tocan sandy loam, 2 to 4 percent slopes*
643	Tocan gravelly sandy loam, 4 to 8 percent slopes*
644	Tocan-Yerington complex, 0 to 4 percent slopes*
651	Theon very gravelly sandy loam, 8 to 30 percent slopes
652	Theon-Olac association
653	Theon-Lapon-Olac association
654	Theon-Rock outcrop-Old Camp complex, 50 to 75 percent slopes*
655	Theon-Yerington association
661	Isolde fine sand, 0 to 15 percent slopes
662	Isolde-Patna complex, 0 to 15 percent slopes
663	Isolde fine sand, slightly saline-alkali, 2 to 15 percent slopes
671	Toulon gravelly loam, 0 to 4 percent slopes
681	Yerington Variant loam, 2 to 4 percent slopes*
691	Ultra gravelly fine sandy loam*
701	Veta very gravelly sandy loam, 2 to 8 percent slopes*
702	Veta very gravelly sandy loam, occasionally flooded, 2 to 4 percent slopes*
704	Veta very cobbly sandy loam, 8 to 15 percent slopes*
711	Vylach-Weena association
721	Wabuska loamy sand*
722	Wabuska loam*
723	Wabuska loam, moderately saline-alkali*
724	Wabuska loam, strongly saline-alkali*
725	Wabuska-Delp-Playas complex, 0 to 15 percent slopes*
731	Hunewill sandy loam, 4 to 8 percent slopes*
732	Hunewill stony loam, 8 to 15 percent slopes*
733	Hunewill stony loam, 15 to 30 percent slopes*
734	Hunewill very gravelly sandy loam, 2 to 8 percent slopes*
735	Hunewill very gravelly sandy loam, 8 to 15 percent slopes*
741	Wedertz-Wellington-Saralegui complex, 0 to 2 percent slopes*
742	Wedertz-Wellington coarse sandy loams, 2 to 4 percent slopes*
743	Wedertz-Wellington coarse sandy loams, 4 to 8 percent slopes*.
744	Wedertz-Saralegui-Wellington complex, 8 to 15 percent slopes*
746	Wellsed-Wedlar association
751	Malpaise gravelly loamy sand, 2 to 8 percent slopes
753	Malpais cobbly sandy loam, 2 to 4 percent slopes*
754	Malpais complex, 2 to 15 percent slopes
755	Malpais-Yerington complex, 4 to 8 percent slopes*
761	Yerington loamy fine sand, 0 to 2 percent slopes*
762	Yerington loamy fine sand, 2 to 4 percent slopes*
763	Yerington loamy fine sand, 4 to 8 percent slopes*
764	Yerington loamy fine sand, 8 to 15 percent slopes*
765	Yerington gravelly sandy loam, 0 to 2 percent slopes*
766	Yerington gravelly sandy loam, 2 to 4 percent slopes*
767	Yerington gravelly sandy loam, 4 to 8 percent slopes*
771	Biddleman association
781	Celeton very cobbly sandy loam, 8 to 30 percent slopes
782	Weena-Malpais association
791	Flex-Duco association
792	Pirouette-Osobb-Rock outcrop association
793	Pirouette extremely stony fine sandy loam, 15 to 30 percent slopes*
802	Loomer-Zephan-Olac association
803	Loomer association
811	Trid-Drit association
812	Trid-Roloc-Drit association
821	Badland
822	Dumps, mine
823	Gypsum land
824	Pits, gravel
825	Pits, mine
826	Playas
827	Slickens
831	Ister-Hyloc-Lunder association
841	Bradshaw-Hartig association
851	Tenpin-Shree association
861	Shree very gravelly loam, 4 to 8 percent slopes*
871	Nall-Luppino-Hotsprings association
881	Ravenell Variant-Devils Variant association
891	Berit-Shoken association, moderately steep
892	Berit-Shoken association, steep
893	Berit-Saralegui association
911	Fulstone Variant-Devils-Glean association
921	Glean-Devils association
922	Glean-Devils-Rock outcrop association
923	Glean-Ticino-Hartig association
932	Shoken-Rock outcrop association
951	Koontz-Ravenell-Haar association
961	Luppino gravelly sandy loam, 8 to 15 percent slopes*
971	Minneha-Drit-Rock outcrop association
972	Minneha-Berit-Wile association
981	Ravenell very gravelly loam, 8 to 30 percent slopes
982	Ravenell-Haar-Rock outcrop association
991	Roloc-Drit association
1001	Rowel very cobbly sandy loam, 8 to 30 percent slopes
1002	Rowel-Rock outcrop association
1011	Smedley very gravelly sandy loam, 2 to 4 percent slopes*
1012	Smedley stony sandy loam, 4 to 8 percent slopes*
1013	Smedley association, sloping
1014	Smedley association, moderately steep
1021	Springmeyer sandy loam, 0 to 4 percent slopes
1031	Burnborough-Glean association
1041	Whichman-Ister-Rock outcrop association
1051	Zyzzi very gravelly sandy loam, 8 to 30 percent slopes
1072	Hawsley sand, 2 to 8 percent slopes*
1073	Hawsley-Gamgee association
1074	Hawsley loamy fine sand, silty substratum, 0 to 2 percent slopes*
1075	Hawsley-Playas complex*
1081	Stucky extremely cobbly sandy loam, 8 to 15 percent slopes*
1082	Stucky association
1083	Stucky-Hunewill-Veta association
1091	Glean Variant-Hartig Variant-Rubble land association
1103	Mirkwood-Nemico association
1110	Surgem-Olac-Cagle association
1121	Duco-Nosrac association
1131	Gamgee gravelly sand, 2 to 15 percent slopes
1141	Old Camp-Mirkwood-Nemico association
1142	Old Camp-Holbrook Variant association
1143	Old Camp-Reno Variant-Hyloc association



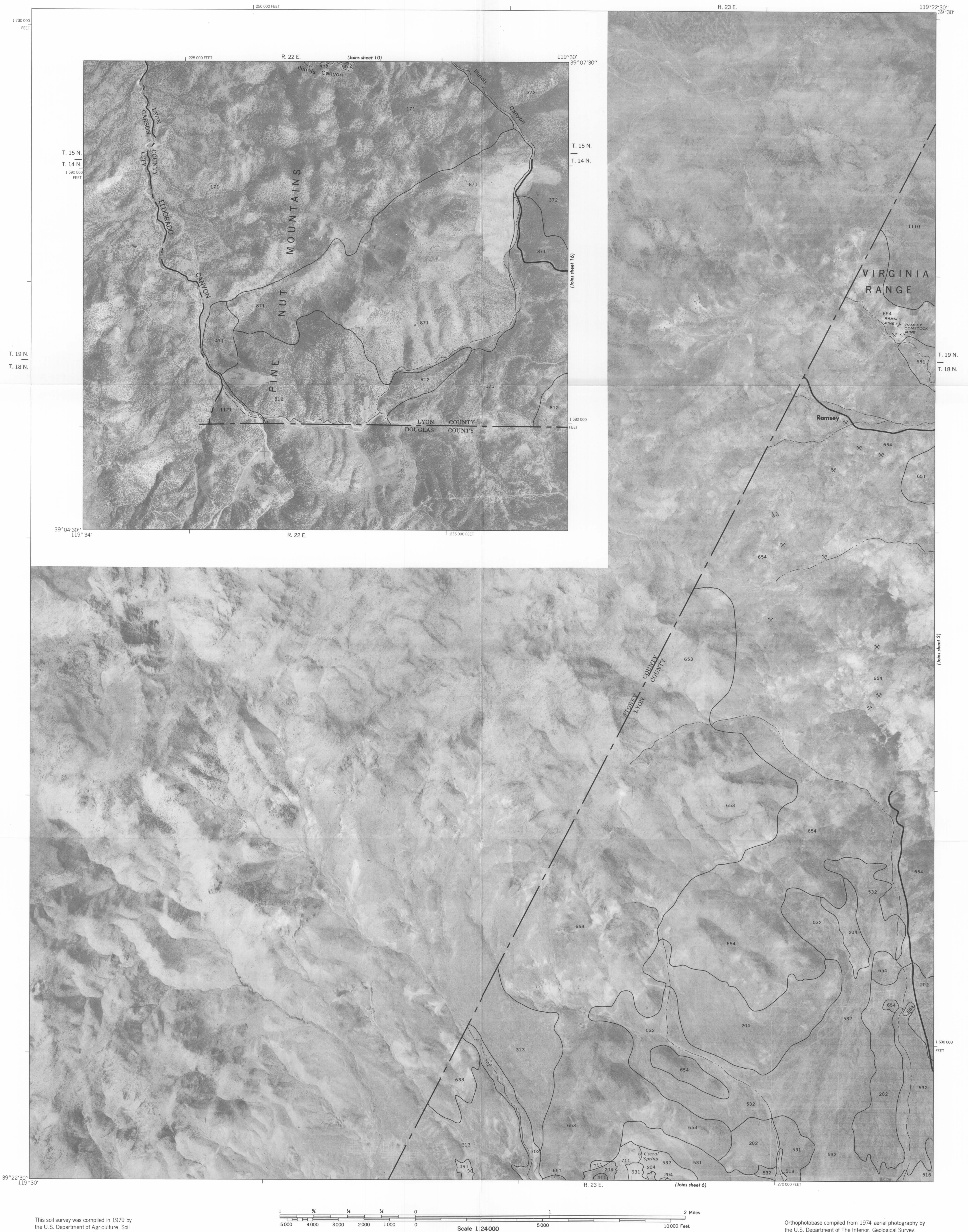


This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE



Scale 1:24 000

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 3
LYON COUNTY AREA, NEVADA
(CHURCHILL BUTTE NE QUADRANGLE)

280 000 FEET | R. 23 E. | R. 24 E. | (Joins inset, sheet 1) | 119°15' | 39°30'

1 730 000 FEET

T. 19 N. | T. 18 N. | T. 19 N. | T. 18 N.

(Joins sheet 2) | (Joins sheet 4)

1 690 000 FEET

39° 22'30" | 119° 22'30" | R. 23 E. | R. 24 E. | (Joins sheet 7) | 310 000 FEET | T. 18 N. | T. 17 N.

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 4
LYON COUNTY AREA, NEVADA
(SILVER SPRINGS NW QUADRANGLE)

Scale 1:24000

1 ¾ ½ ¼ 0 1 2 Miles

5000 4000 3000 2000 1000 0 5000 10000 Feet

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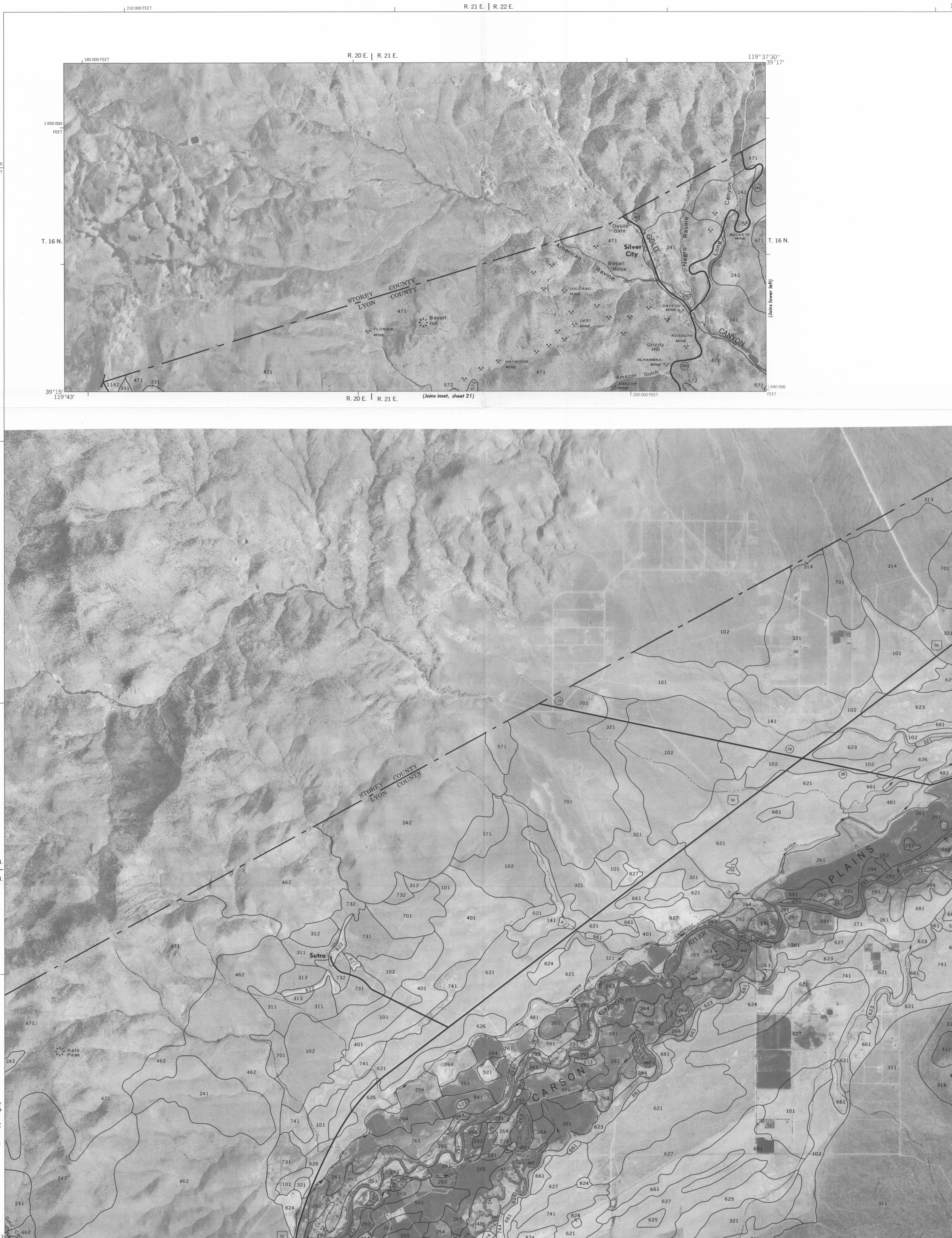
Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

LYON COUNTY AREA, NEVADA NO. 4



1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10 000 Feet

Scale 1:24 000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 6
LYON COUNTY AREA, NEVADA
(CHURCHILL BUTTE SW QUADRANGLE)

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

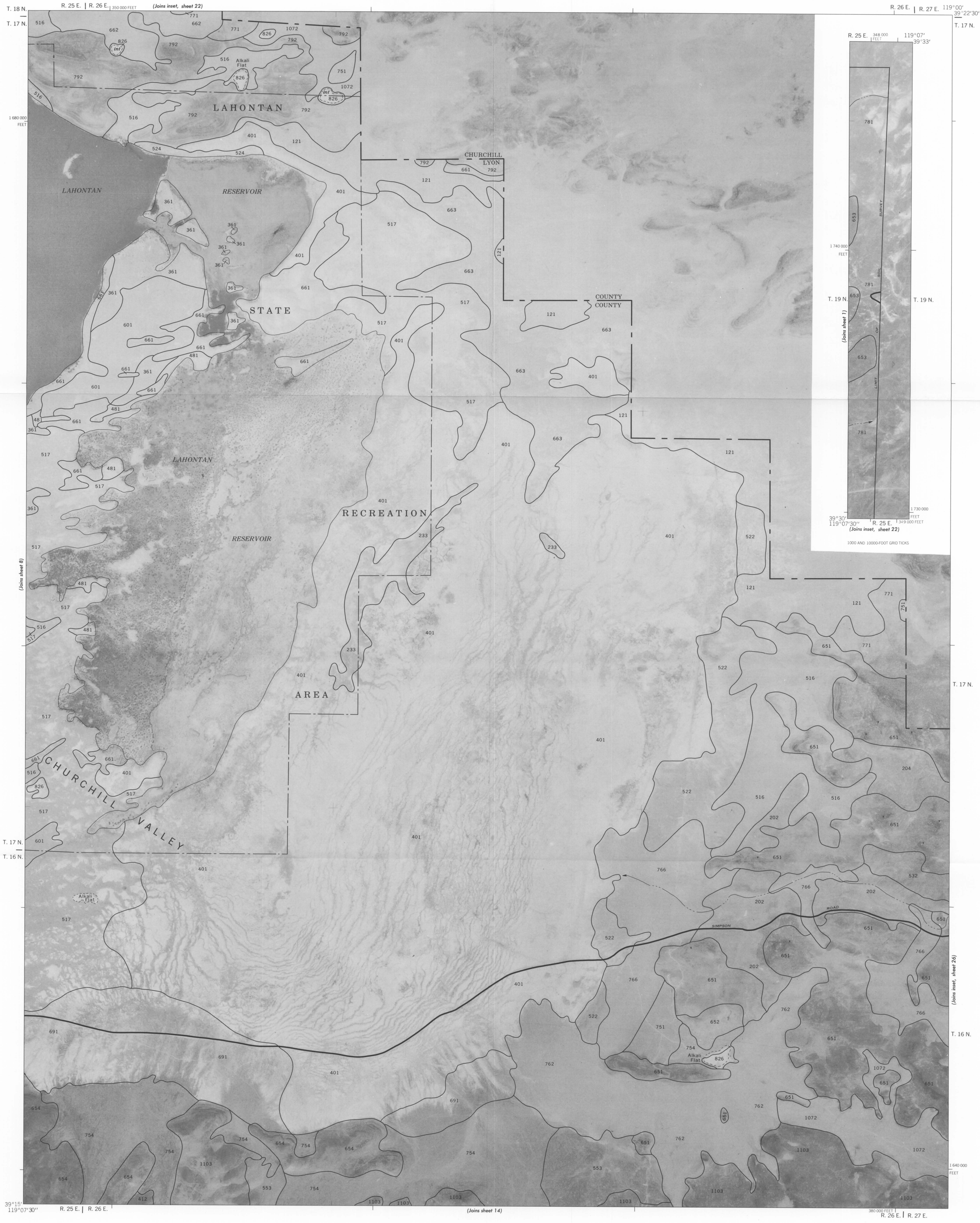
This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.



1 ½ ¼ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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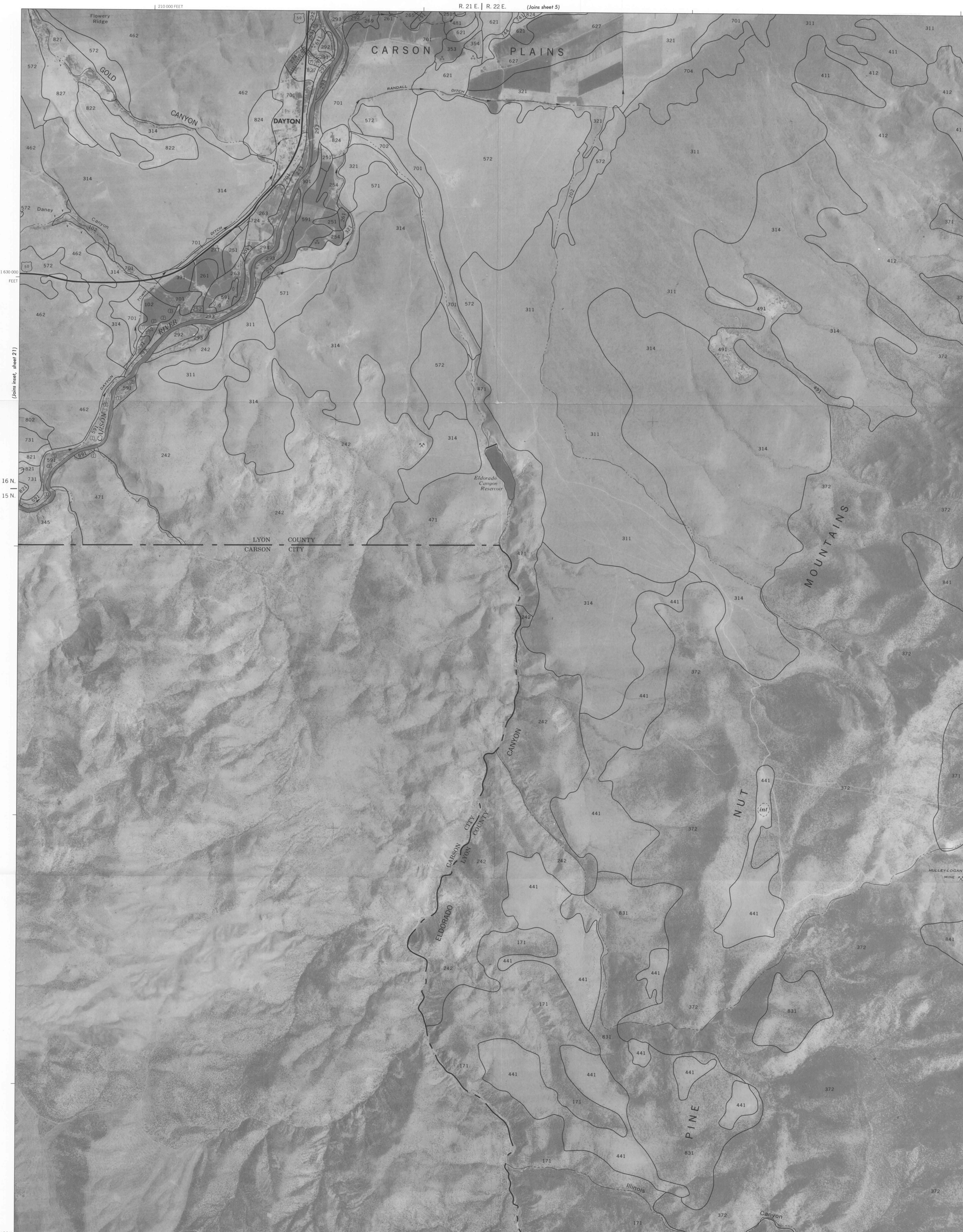
Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.



1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

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R. 22 E. | R. 23 E. (Joins sheet 6)

R. 22 E. | R. 23 E. (Joins sheet 16)

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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Scale 1:24000

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 13
LYON COUNTY AREA, NEVADA
(WABUSKA NW QUADRANGLE)

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

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1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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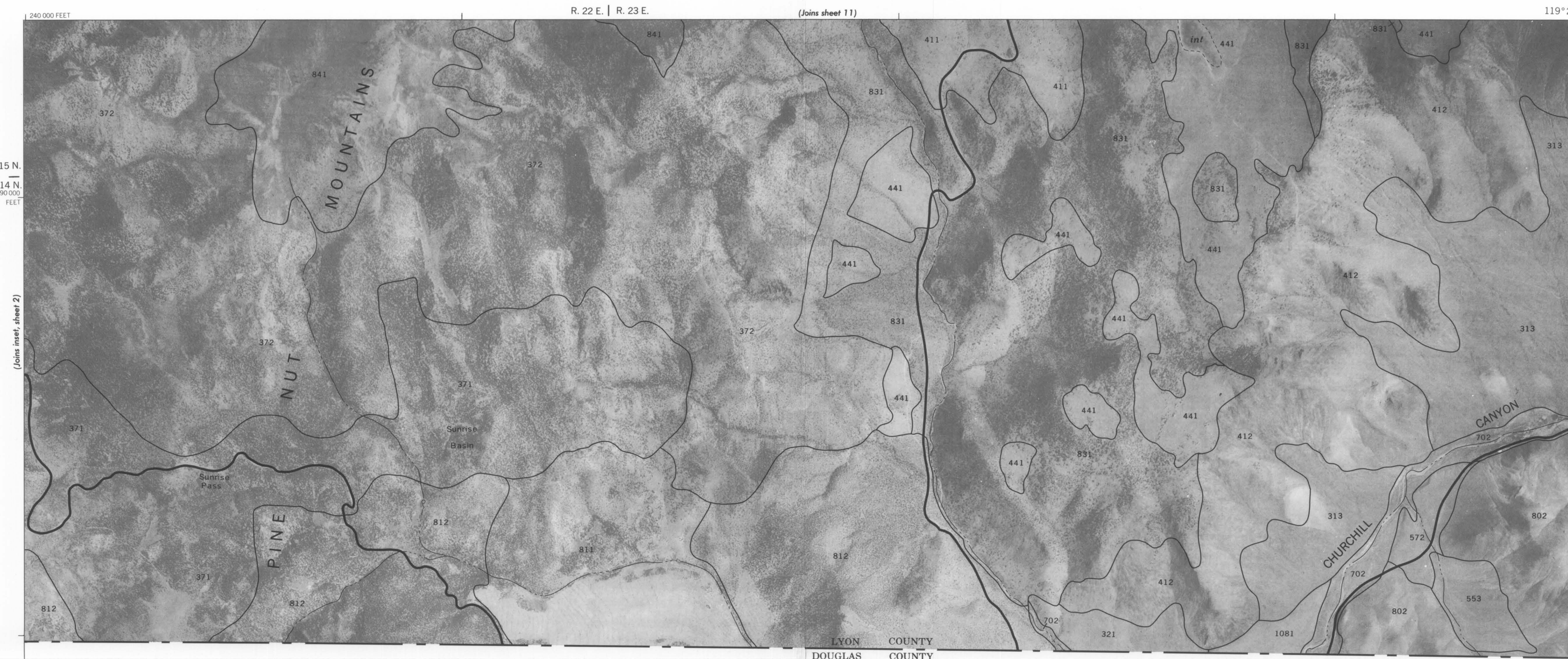
Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.



39°00'
119°30'
R. 22 E. | R. 23 E.
270 000 FEET
1 550 000 FEET

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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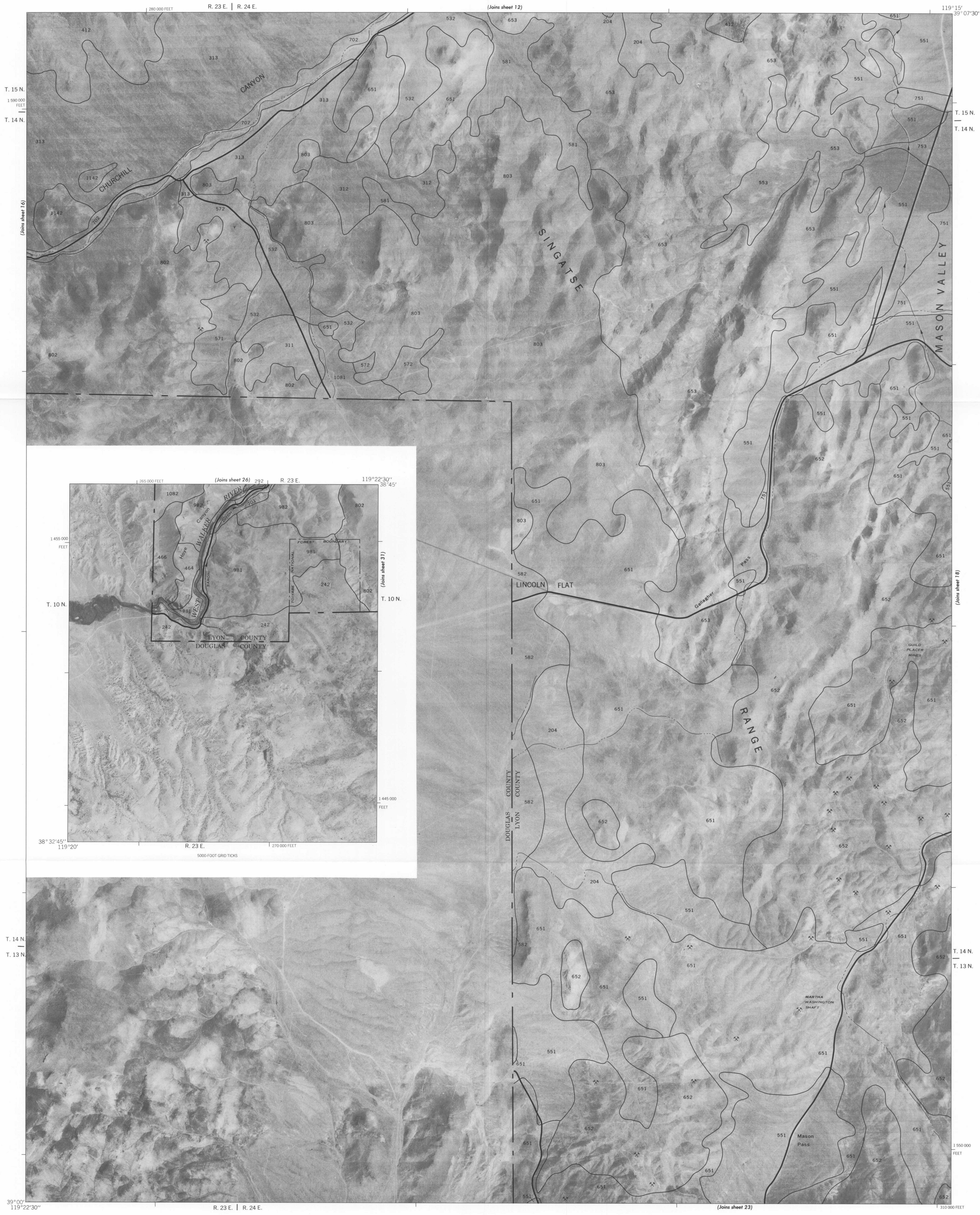
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 17
LYON COUNTY AREA, NEVADA
(COMO SE AND DESERT CREEK PEAK NW QUADRANGLES)



1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10 000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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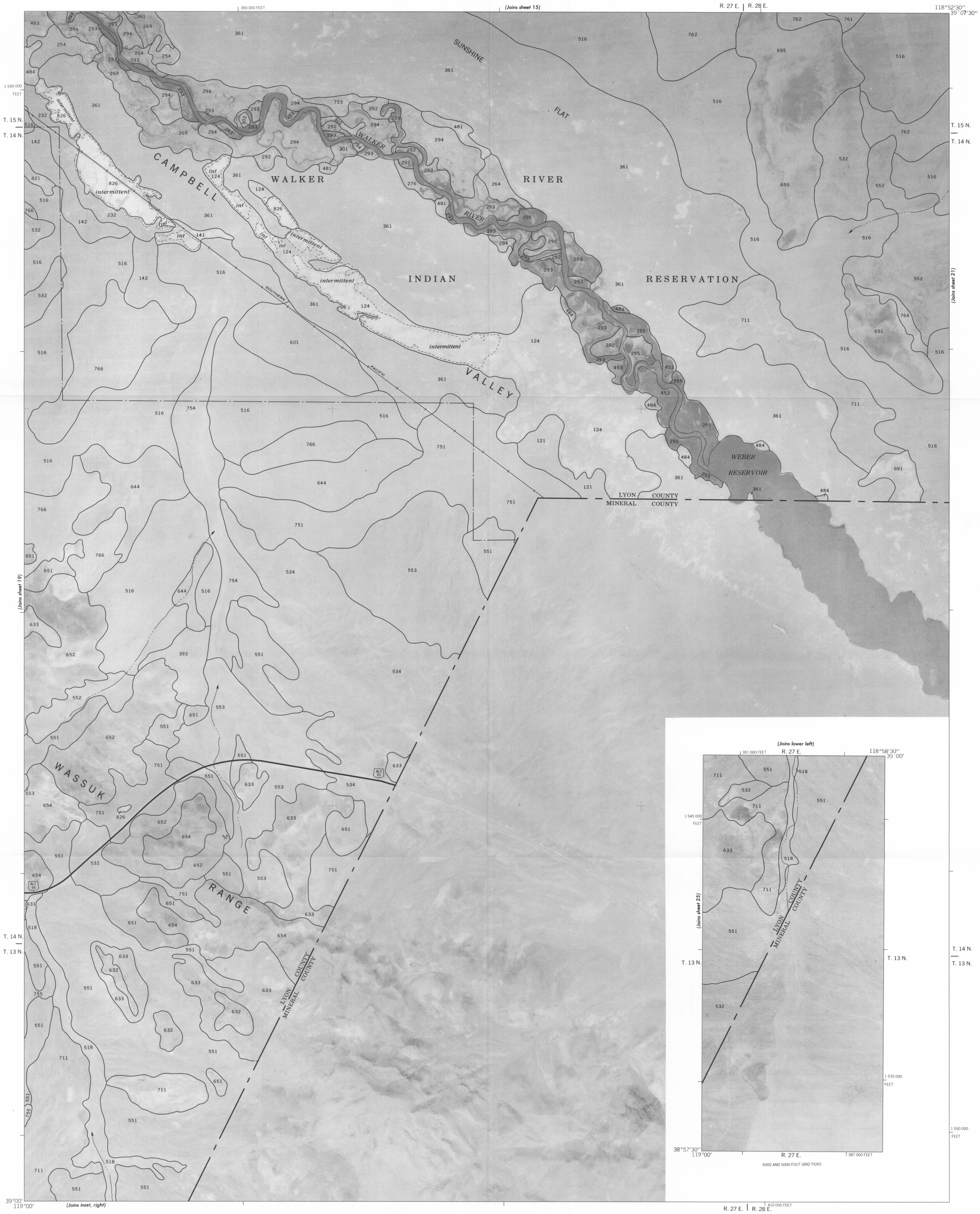
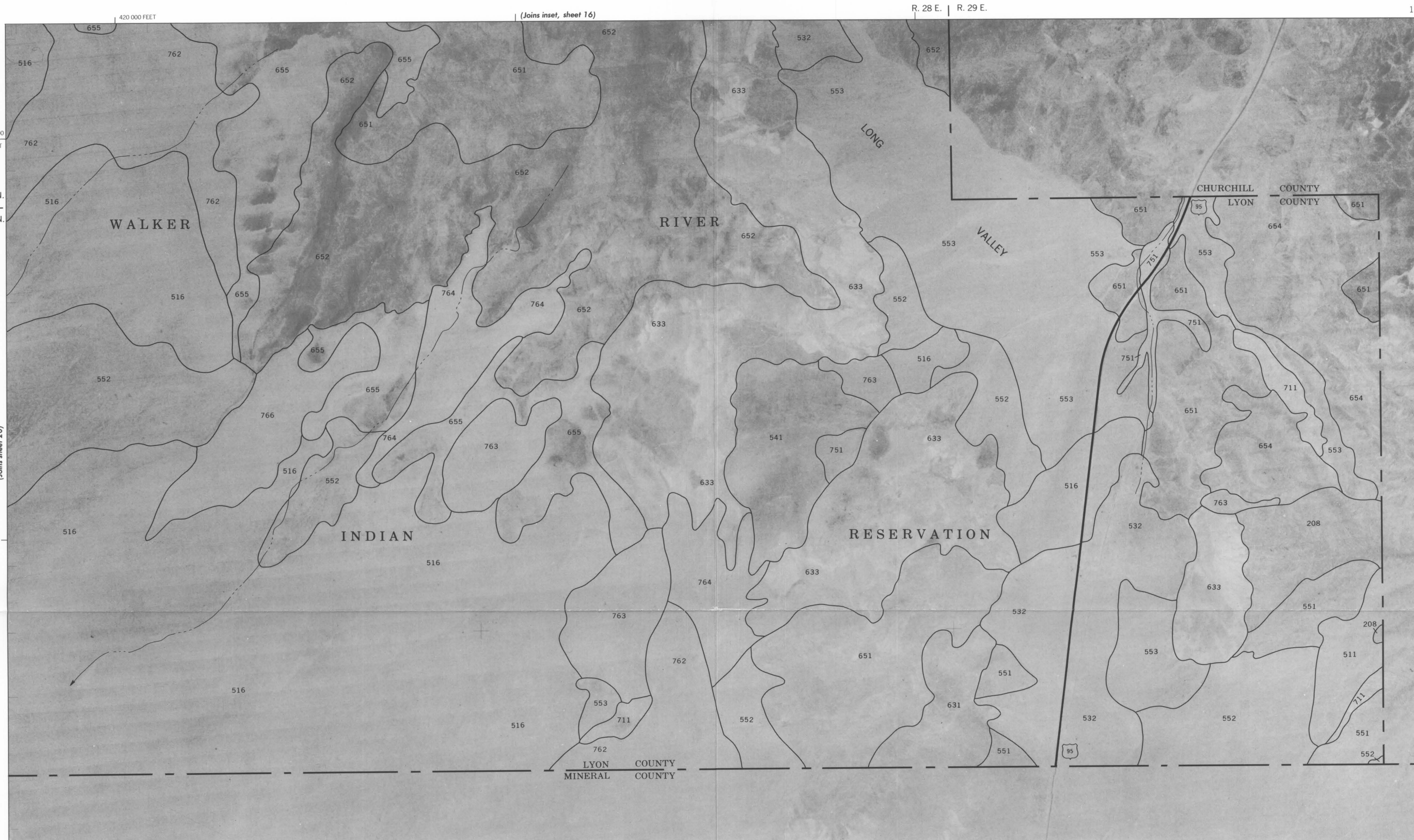


1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.



T. 14 N.
T. 13 N.

39°00'
118°52'30"

R. 28 E. R. 29 E.

1 550 000 FEET
450 000 FEET

1 ½ ½ ½ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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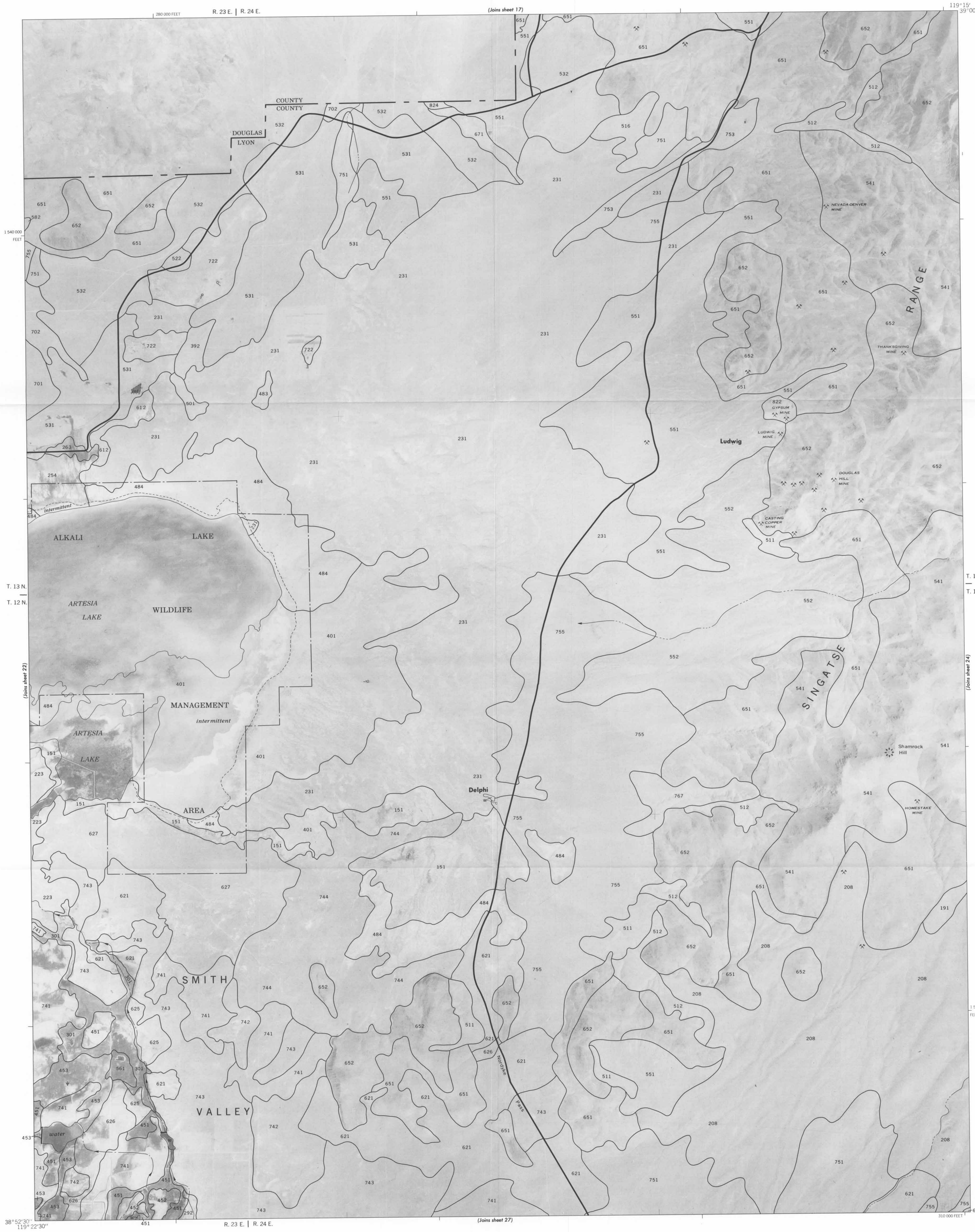

Scale 1:24000

1 ½ ¼ 0 1 2 Miles

5000 4000 3000 2000 1000 0 5000 10 000 Feet

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Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

1 | ¾ | ½ | ¼ | 0 | 1 | 2 Miles

5000 | 4000 | 3000 | 2000 | 1000 | 0 | 5000 | 10 000 Feet

Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

Scale 1:24 000

1 Miles ... 2 Miles
5000 Feet ... 10 000 Feet

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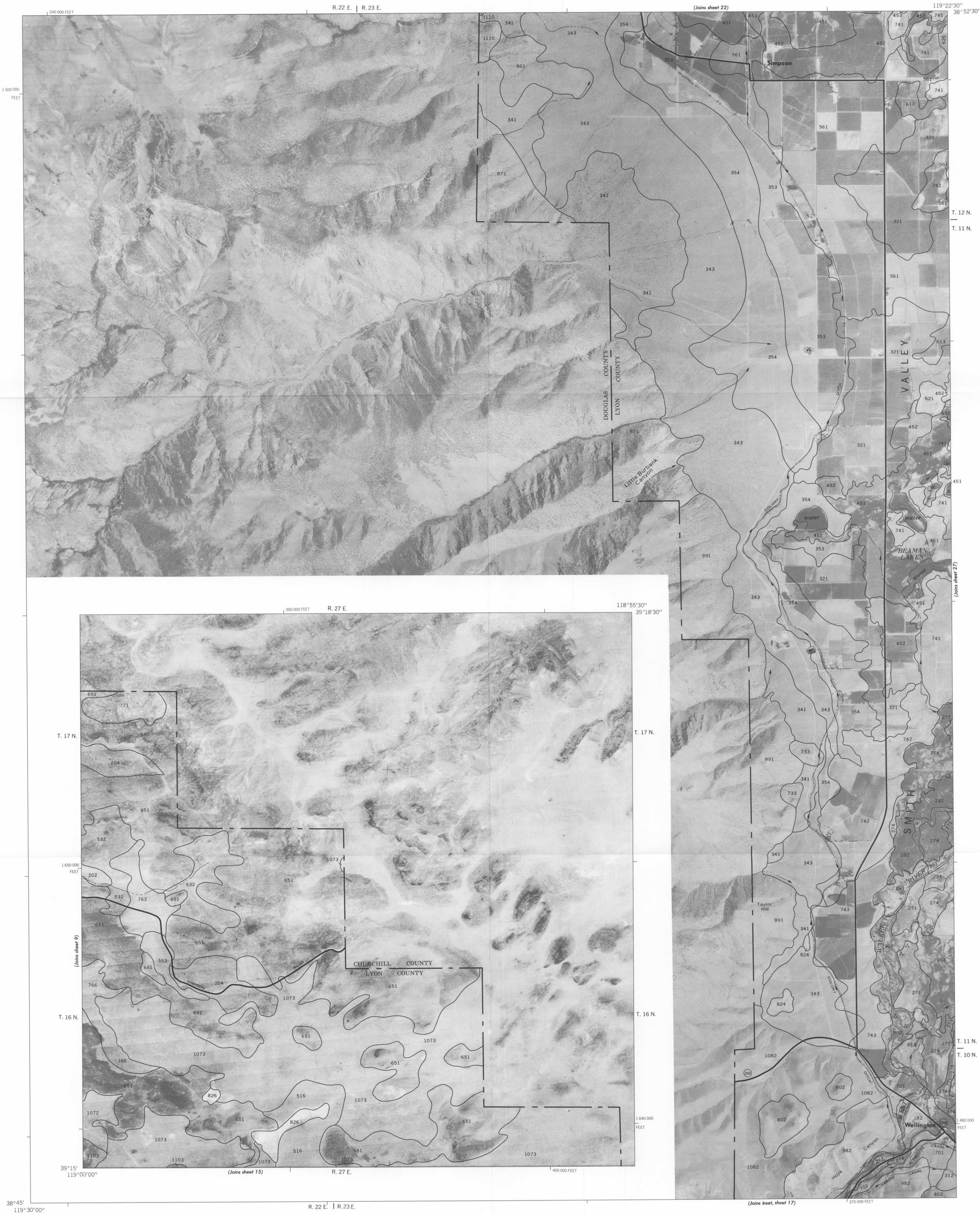

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

(Joins sheet 25)

Scale 1:24000

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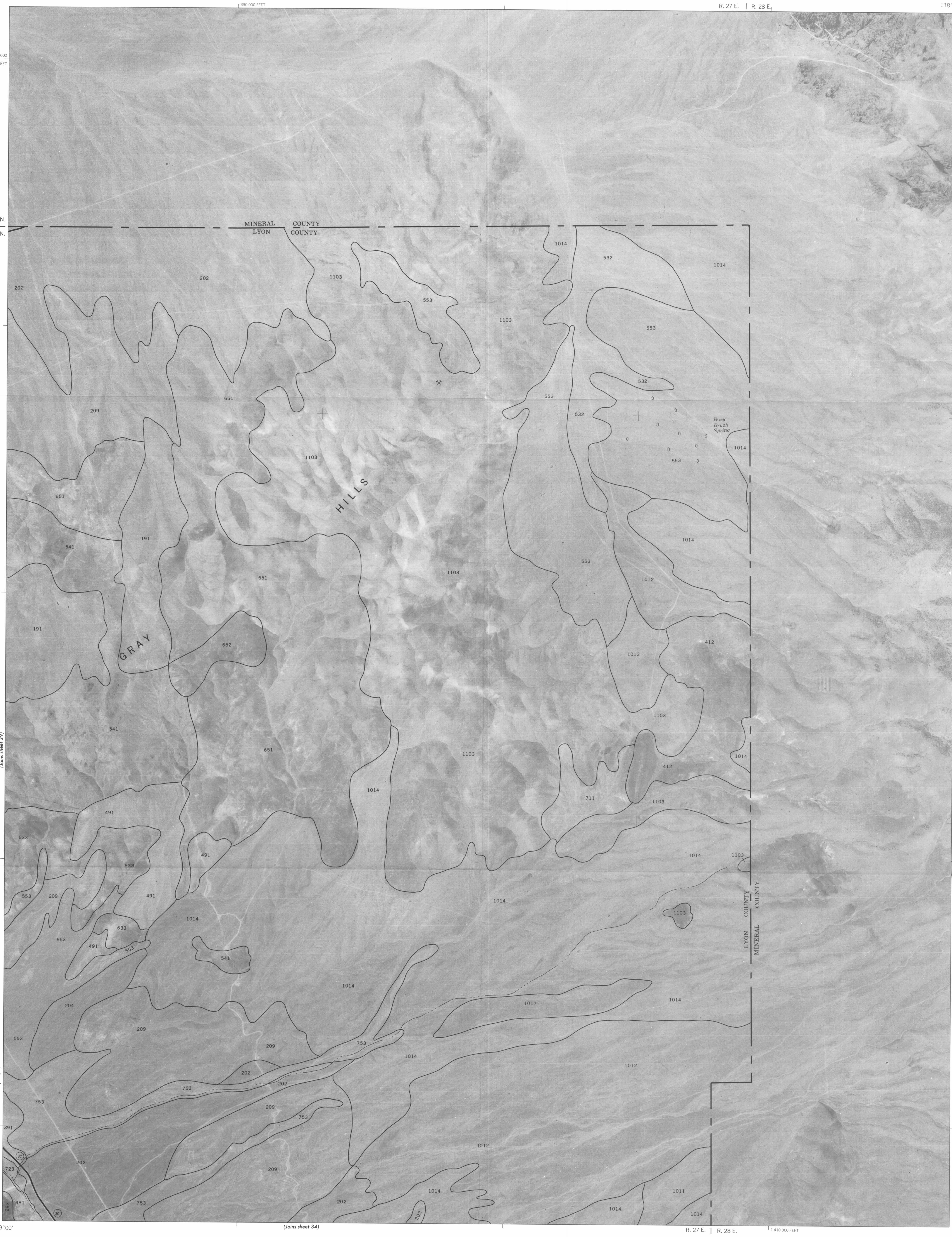


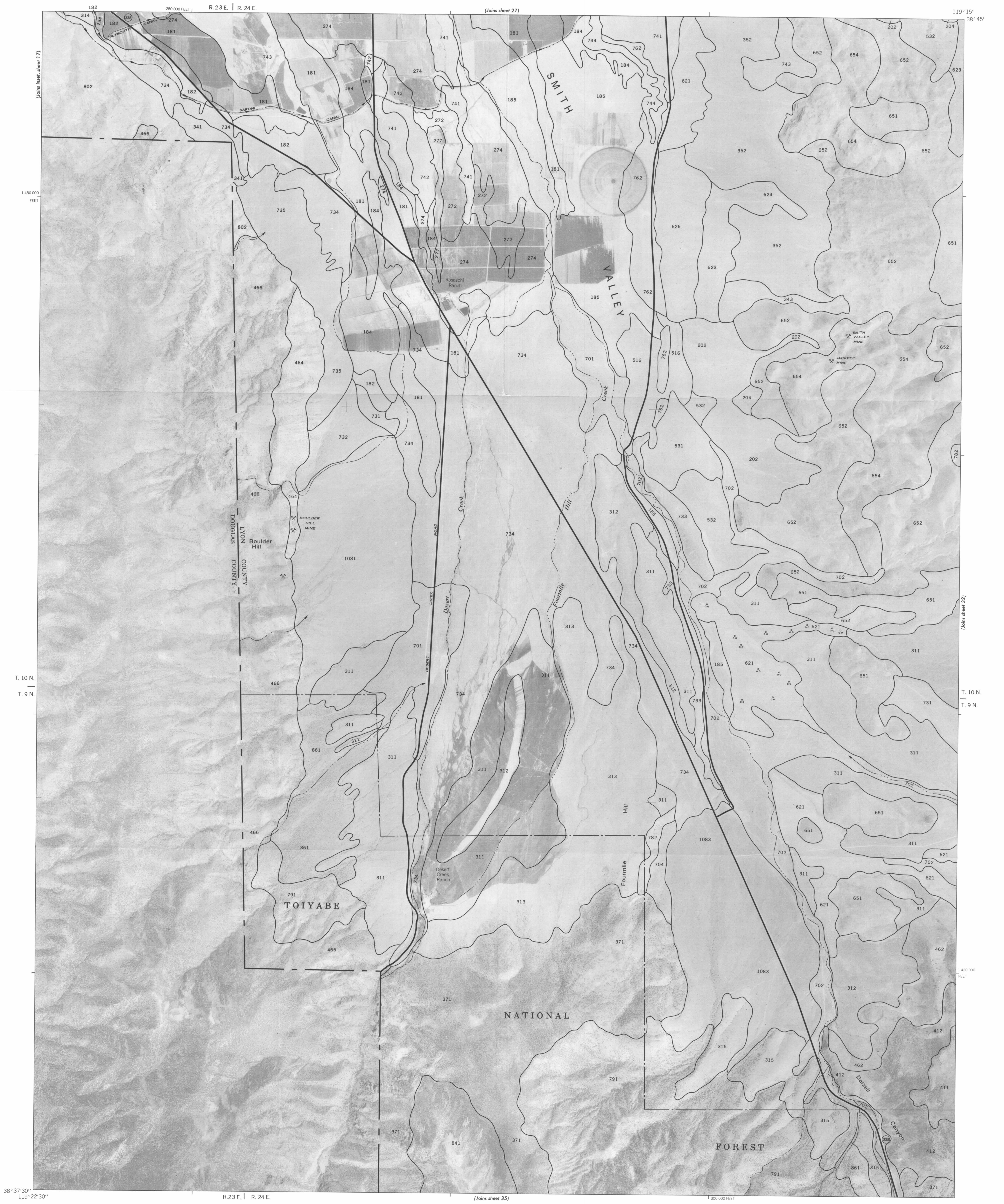
This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Scale 1:24000
1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 31
LYON COUNTY AREA, NEVADA
(DESERT CREEK PEAK NE QUADRANGLE)



This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Scale 1:24 000

1 ¾ ½ ¼ 0 1 2 Miles

5 000 4 000 3 000 2 000 1 000 0 5 000 10 000 Feet

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

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1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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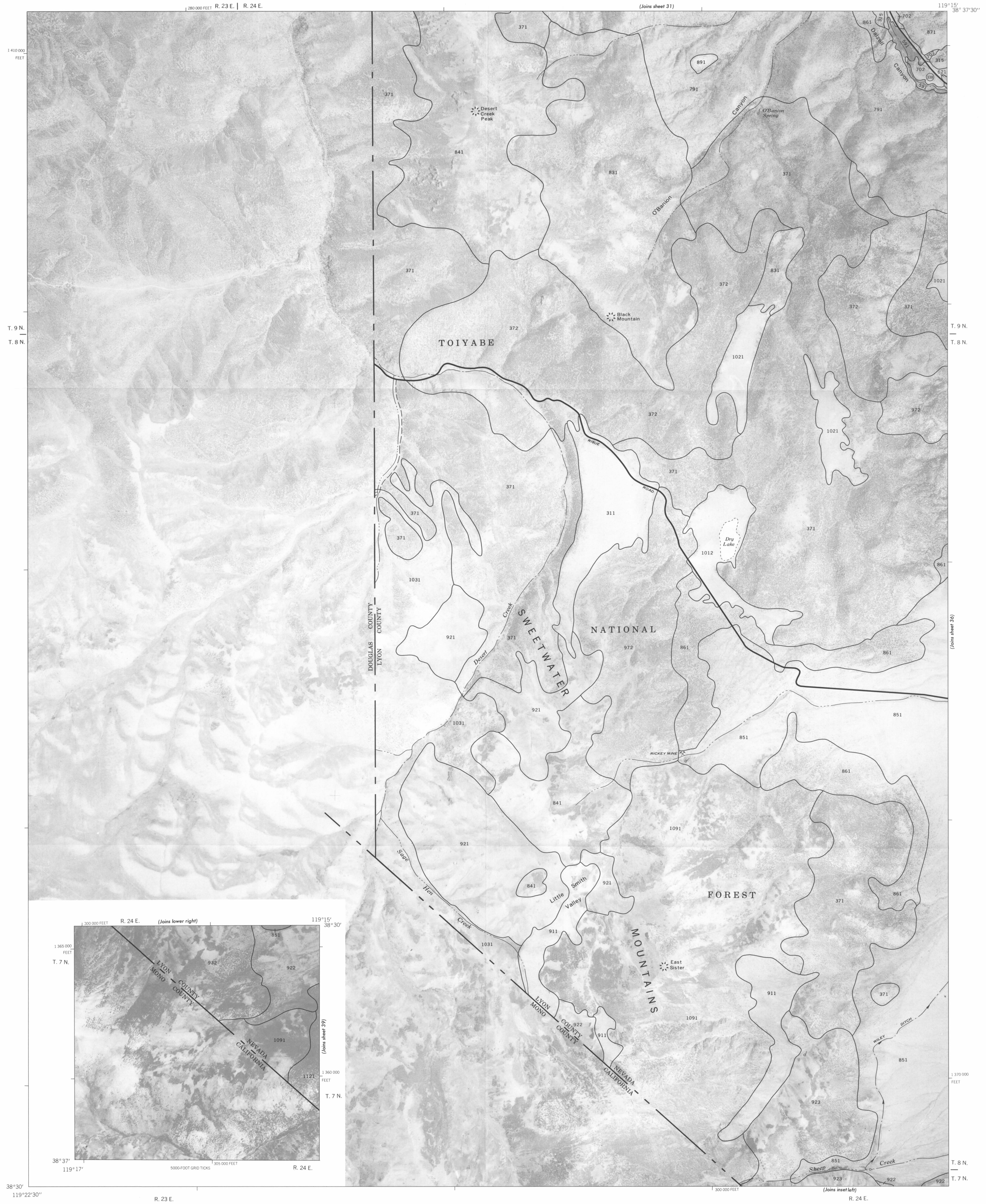
1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10 000 Feet
Scale 1:24 000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.



1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 36
LYON COUNTY AREA, NEVADA
(PINE GROVE HILLS SW QUADRANGLE)

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Scale 1:24 000
2 Miles
10 000 Feet

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 37
LYON COUNTY AREA, NEVADA
(PINE GROVE HILLS SE QUADRANGLE)

Scale 1:24000

1	¾	½	¼	0		1		2 Miles
5000	4000	3000	2000	1000	0	5000		10000 Feet

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

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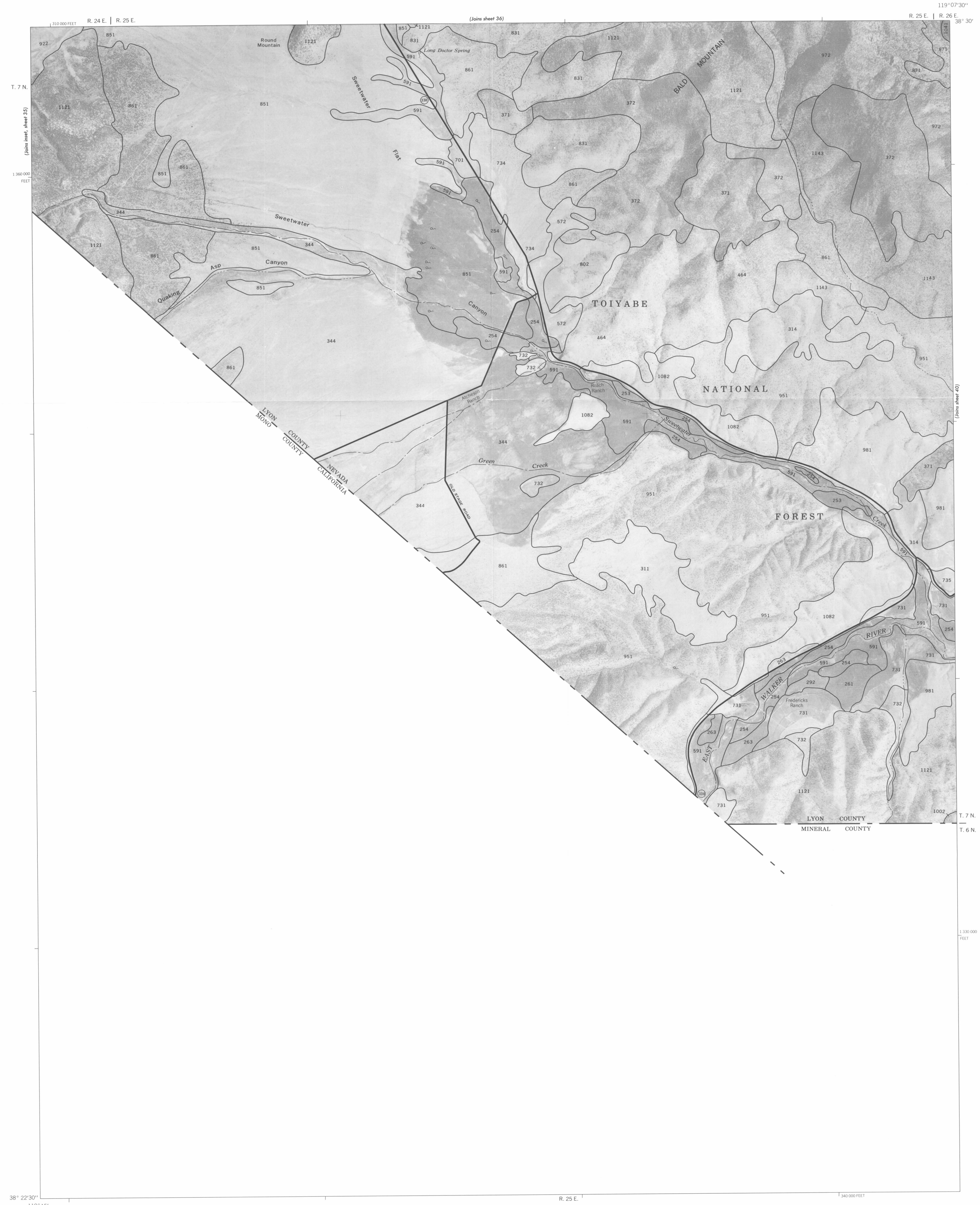
SOIL CONSERVATION SERVICE



1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 40
LYON COUNTY AREA, NEVADA
(BRIDGEPORT NE QUADRANGLE)

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

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Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.

1 ¾ ½ ¼ 0 1 2 Miles
5000 4000 3000 2000 1000 0 5000 10000 Feet
Scale 1:24000

This soil survey was compiled in 1979 by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies

Orthophotobase compiled from 1974 aerial photography by the U.S. Department of The Interior, Geological Survey. Planimetric detail obtained from 7½ minute series maps. 10,000-foot grid based on state coordinate system.